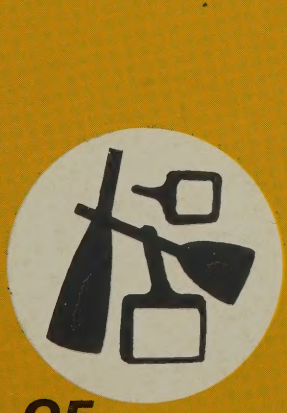
SYLVANIA



CHARACTERISTICS OF CATHODE RAY TUBES

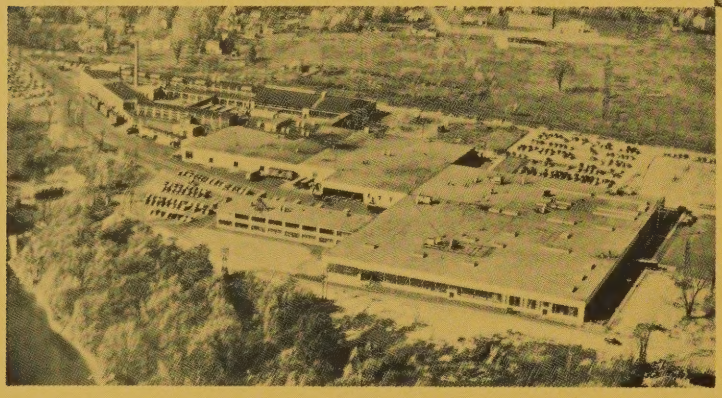
• Industrial and Military • TV Picture Tubes

15¢

There is a BIG DIFFERENCE *in Television Picture Tubes*

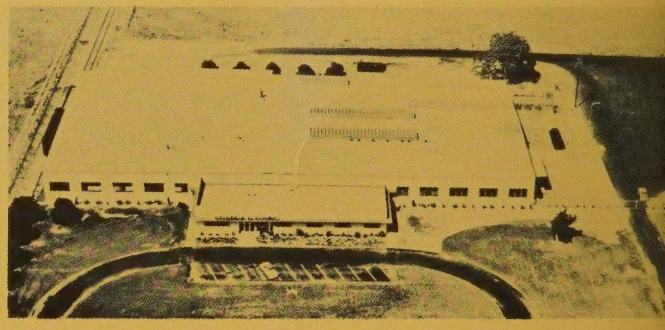
At Sylvania that difference is modern, improved methods applied by men who know the business best—Sylvania engineers. This combination of men and methods has produced more than 20 million Cathode Ray Tubes in these modern production centers.

SENECA FALLS, NEW YORK
Picture Tube Operation Headquarters



OTTAWA, OHIO *serving the mid-west*

FULLERTON, CALIFORNIA *serving the far-west*



The Quality Of Sylvania's Cathode Ray Tubes and Television Picture Tubes Is Only Half the Story

"Service Completes the Picture"

Nineteen warehouses located in key marketing areas throughout the nation meet your distributors needs with "in-stock" supplies of Sylvania's extensive picture tube and cathode ray tube lines.

Quality Products and Quality Service . . . Yours From **SYLVANIA**

Latest PHOSPHOR CHARACTERISTICS

Standard Registered Phosphors

CHARACTERISTICS OF INDUSTRY PHOSPHORS

The following chart is presented as a data service to help you in determining the proper phosphor for your application.

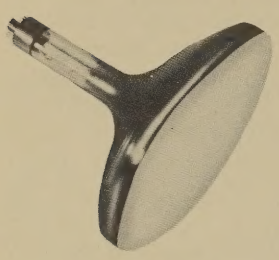
In addition to the basic data shown, specific information such as Spectral Energy Distribution Curves and/or Persistence Curves will be supplied upon request, as published data becomes available.

E.I.A. PHOSPHOR	EMISSION COLOR FLUORESCENCE	PHOSPHORESCENCE	PERSISTENCE	APPLICATION
P-1	Yellowish green	Yellowish green	Medium	Used in cathode ray oscillograph and radar.
P-2	Yellowish green	Yellowish green	Medium	Used in cathode ray oscillographs.
P-3	Greenish yellow	Greenish yellow	Medium	
P-4	White	White	Medium to medium short	Used in monochrome television picture tubes.
P-5	Blue	Blue	Medium short	Photographic recording.
P-6	White	White	Short	Obsolete—Originally used in television receivers.
P-7	White	Yellowish Green	Blue-Med. Short Yellow–Long	Used for radar.
P-8	Obsolete	replaced by P-7		
P-9	Obsolete			
P-10			Dark trace—very long	Outside source of light is used for observation. Persistence from seconds to several months.
P-11	Blue	Blue	Medium short	Photographic recording.
P-12	Orange	Orange	Long	Used for radar.
P-13	Reddish Orange	Reddish Orange	Medium	
P-14	Bluish white	Greenish Yellow	Blue—medium short Greenish Yellow-Medium	Used for military displays where repetition rate is 2 to 4 seconds after excitation is removed.
P-15	Green	Green	Visible—short Ultra-violet—very short	Television pick-up of photographs by Flying Spot Scanning.
P-16	Bluish purple	Bluish purple	Very short	Television pick-up of photographs by Flying Spot Scanning.
P-17	Yellow white to blue white	Yellow	Blue—short Yellow—long	Used for military displays.
P-18	White	White	Medium	Low frame rate television.
P-19	Orange	Orange	Long	Radar indicators.
P-20	Green to yellow green	Green to yellow green	Medium to medium short	High visibility displays.
P-21	Reddish orange	Reddish orange	Medium	
P-22	Tricolor phosphor screen		Medium	Used for color television.
P-23	White	White	Medium	Low temperature white—(Sepia) Interchangeable with P-4.
P-24	Green	Green	Short	Used in Flying Spot Scanner tubes.
P-25	Orange	Orange	Medium	Used for military displays where repetition rate is 10 seconds, to 2 minutes after excitation is removed.
P-26	Orange	Orange	Very long	Used for radar display.
P-27	Reddish orange	Reddish orange	Medium	Color Television Monitor Service
P-28	Yellow green	Yellow green	Long	Used for radar display.
P-29	Two color phosphor screen		Medium	Used as indicator in aircraft instruments.

Sylvania
INDUSTRIAL & MILITARY
CATHODE RAY
Tubes

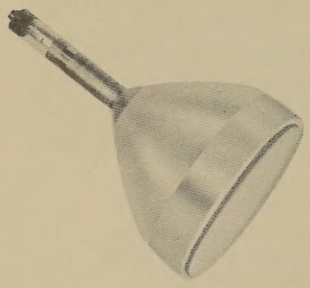
Meeting Exacting Requirements for Use Everywhere In Electronics

Typical Examples of Sylvania Leadership



TEST PICTURE TUBES

Low-cost, lightweight receiver check tubes for TV repairmen and TV set manufacturers: 5AXP4, 8XP4, 8YP4.

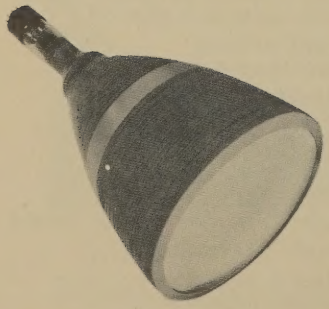


10″ VIDEO RECORDING C. R. T.

In worldwide use, Sylvania type 10NP11 is the only registered 10″ C. R. T. manufactured specifically for TV program recording requirements.

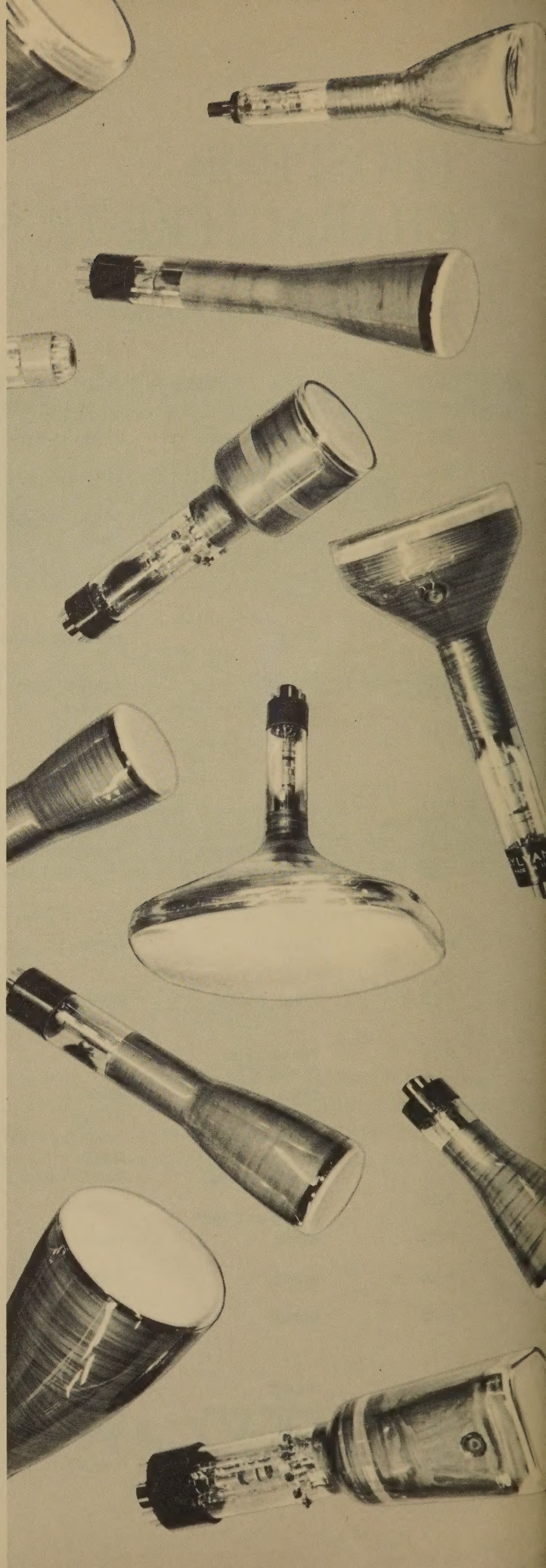
LOW-PRICE FLYING SPOT SCANNER

Sylvania-pioneered for video service equipment, type 5BNP16 features operation at lower anode voltage, and shorter physical tube length.



KEY ELECTROSTATIC FOCUS TYPES

Cathode Ray Tube types with electrostatic focus eliminate necessity for external focus coil—thus reduce weight and size of radar indicators.



INDUSTRIAL & MILITARY MAGNETIC DEFLECTION TYPES

§ Type No.	Heater		Bulb						Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating $\mu\mu f$.	Focusing Method	Absolute Max. Ratings		Typical Operation		
	Volts	Amperes	Nominal Face Dimensions Inches	Nominal Length Inches	Construction	Anode Terminal	Face Plate ‡	Defl. Angle (Note 1)						Anode Volts	Accelerator Grid Volts	Anode Volts	Accelerator Grid Volts	Cutoff Voltage*
3AVP5 3AVP11 3AVP16	6.3	0.60	3 Diam.	19⅜	Glass	Recessed Small Cavity	Clear	9½	None	JEDEC No. B5-57	12D	None	Magnetic Grid No. 1 Voltage = 0 to −300 Volts Max. Extremely High Resolution.	30,000	1000	20000	400	55
3AWP5	6.3	0.60	3 Diam.	19⅜	Glass	Recessed Small Cavity	Clear	9½	None	JEDEC No. B5-57	12D	None	Magnetic Grid No. 1 Voltage = 0 to −300 Volts Max. Extremely High Resolution.	30,000	1000	20,000	400	50
3HP7	6.3	0.6	3 Diam.	9 13/16	Glass	Recessed Small Ball	Clear	55	None	Medium Shell Octal 8 Pin	5AN	None	Magnetic	5500	220	5000	150	15-45
3NP4	6.3	0.6	2 9/16 Diam.	10	Glass	Recessed Small Ball	Clear	42	None	Special 5 Pin	5BV	275 Min., 375 Max.	Magnetic	27,500	...	24,000	...	60
4BP15	6.3	0.6	4 Diam.	13⅛	Glass	Recessed Small Cavity	Clear	50	None	Octal	8ET	100 Min., 500 Max.	Magnetic	27,500	No Grid	25,000	No Grid	75-175
4CP7	6.3	0.6	4 Diam.	11¼	Glass	Recessed Small Cavity	..	50	None	Small Shell Duodecal 5 Pin	12G	100 Min., 500 Max.	Magnetic	22,000	...	20,000	...	70-140
5ACP2	6.3	0.6	4 15/16 Diam.	11⅛	Glass	Recessed Small Ball	A	53	None	Medium Shell Octal 8 Pin	8EQ	None	Electrostatic Focusing Voltage = −500 to +500 Volts Max., Operating Voltage = 0 Volts.	19,800	450	12,000	250	27-63
5ACP4							A											
5ACP19							A											
5AEP7	6.3	0.6	4 15/16 Diam.	11⅛	Glass	Recessed Sm. Ball Cap	..	53	None	Medium Shell Octal 8 Pin	5AEP7	None	Electrostatic Focusing Voltage = −550 to +770 Volts Max., Operating Range = −28 to +154 Volts.	8800	770	7000	250	25-70
5AHP2	6.3	0.6	4 15/16 Diam.	11⅛	Glass	Recessed Sm. Ball Cap	..	53	None	Medium Shell Octal 8 Pin	8EF	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to 250 Volts.	11,000	770	7000	300	33-77
5AHP2A							A											
5AHP4							..											
5AHP4A							A											
5AHP7							..											
5AHP7A							A											
5AHP14							..											
5AHP14A							A											
5AHP19							..											
5AHP19A							A											
5AHP25							..											
5AHP25A							A											
5AKP15	6.3	0.60	5 Diam.	12 9/16	Glass	Recessed Small Cavity	Clear	50	None	Small Shell Duodecal 5 Pin	12G	100 Min., 500 Max	Magnetic	44,000	...	30,000	...	80-140
5AKP24							A											
5ALP1	6.3	0.2	4⅞ Diam.	7¼	Glass	Recessed Snap-On	..	53	None	Miniature 9 Pin	9 DF	None	Magnetic	11,000	No Grid	8000	No Grid	50
5ALP4																		
5ALP7																		
5ALP11																		
5AUP24	6.3	0.6	5 Diam.	12½	Glass	Recessed Small Cavity	CA	40	None	Small Shell Duodecal 7 Pin	5AUP24	100 Min., 500 Max.	Electrostatic Focusing Voltage = 6600 Volts Max. Operating Range = 4600 to 5800 Volts.	29,700	385	27,000	200	40-100
5AXP4	6.3	0.6	4 15/16 Diam.	10⅝	Glass	Recessed Small Cavity	Clear	53	None	Small Shell Duodecal 5 Pin	12S	None	Auto Electrostatic	19,800	550	14,000	300	33-77
5AYP4	6.3	0.6	4 15/16 Diam.	11 9/16	Glass	Recessed Small Ball	CA	53	None	Medium Shell Octal 8 Pin	5AYP4	500 Min., 750 Max.	Electrostatic Focusing Voltage = 1650 Volts Max. Operating Range = 980 to 1410 Volts.	11,000	450	10,000	300	30-76
5BNP16	6.3	0.6	4 15/16 Diam.	10⅝	Glass	Recessed Small Cavity	Gray A	53	None	Small Shell Duodecal 6 Pin	12C	None	Electrostatic Focusing Voltage = 5000 Volts Max., Operating Voltage = 4140 to 4740 Volts.	22,000	600	20,000	300	45-75
5BCP1	6.3	0.30	4 15/16 Diam.	7	Glass	Small Ball Cap	Clear A	70	None	JEDEC No. E9-37	9HD	None	Magnetic	11,000	...	8000	...	25-75
5BCP4																		
5BCP7																		
5BCP11																		
5BYP5	0.9	0.160	5 Diam.	18¾	Glass	Recessed Small Cavity	Clear	30	None	Small Shell Duodecal 7 Pin	5BYP5	None	Magnetic Beam Alignment Voltage = 6.3 Vac or dc (variable) between pins 3 and 4 and pins 10 and 11. Axial field provided by 14 inch long solenoid. Extremely High Resolution.	18,000	...	15,000	...	10
5CEP11	6.3	0.60	5¼ Diam.	13	Glass	Special	Gray A	42	None	Small Shell Duodecal 6 Pin	12Q	None	Electrostatic Focusing Voltage = 5500 Volts Max. Operating Voltage = 4140 to 4740 Volts.	24,200	660	20,000	300	45-70
5CEP16																		
5CGP29	6.3	0.60	5 Diam.	11⅛	Glass	Recessed Small Cavity	Gray A	53	None	Medium Shell Octal 8 Pin	5CGP29	Color Selector Method Electrostatic	Magnetic Seeker Voltage = 385 Volts Max. Operating Voltage = 100 to 300 Volts.	19,800	660	16,000	300	50-105

Note 1: Diagonal Deflection Angles are given for rectangular types.
* Voltage measured from the accelerator grid to the control grid.
* Control grid bias for visual extinction of undeflected focused spot. Visual extinction of focused raster will generally require about 5 volts less bias.

‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.
§ Commonly used Screens listed, others may be available on certain types.

INDUSTRIAL & MILITARY MAGNETIC DEFLECTION TYPES

§ Type No.	Heater		Bulb						Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating $\mu\mu f$.	Focusing Method	Absolute Max. Ratings		Typical Operation		
	Volts	Amperes	Nominal Face Dimensions Inches	Nominal Length Inches	Construction	Anode Terminal	Face Plate ‡	Defl. Angle (Note 1)						Anode Volts	Accelerator Grid Volts	Anode Volts	Accelerator Grid Volts	Cutoff Voltage*
5CHP11	6.3	0.60	5 Diam.	15½	Glass	Recessed Small Cavity	Gray	40	None	Small Shell Duodecal 7 Pin	5CHP11	Auxiliary Deflection Method Electrostatic	Magnetic Electrostatic	29,700	770	27,000	500	110
5CJP11	6.3	0.60	5 Diam.	14⅜	Glass	Recessed Small Cavity	Gray	40	None	Small Shell Duodecal 7 Pin	5CJP11	None	Magnetic	29,700	770	27,000	500	110
5CNP16	6.3	0.60	5 Diam.	14⅜	Glass	Recessed Small Cavity	Clear A	50	None	JEDEC No. B6-63	5CNP16	500 Max., 100 Min.	Electrostatic	22,000	450	20,000	200	22-52
													Focusing Voltage = 3850 Volts Max. Operating Voltage = 2200 to 3160 Volts.					
5CQP5 5CQP11 5CQP16	6.3	0.60	5 Diam.	19⅜	Glass	Recessed Small Cavity	Clear	19	None	JEDEC No. B5-57	12D	None	Magnetic	30,000	1000	20,000	400	55
													Grid No. 1 Voltage = 0 to −300 Volts Max. Extremely High Resolution.					
5CRP5	6.3	0.60	5 Diam.	19⅜	Glass	Recessed Small Cavity	Clear	19	None	JEDEC No. B5-57	12D	None	Magnetic	30,000	1000	20,000	400	50
													Grid No. 1 Voltage = 0 to −300 Volts Max. Extremely High Resolution.					
5FP4A 5FP7 5FP7A 5FP7B 5FP11A 5FP14 5FP14A 5FP15A 5FP25	6.3	0.6	4¹⁵⁄₁₆ Diam.	11⅛	Glass	Recessed Sm. Ball Cap	Clear	53	None	Medium Shell Octal 5 Pin or 8 Pin	5AN	None	Magnetic	8800 8800 8800 13,200 8800 8800 8800 13,200	450 450 770 770 770 770 770 770	6000	250	25-70
5WP11 5WP15	6.3	0.6	5 Diam.	11⁷⁄₁₆	Glass	Recessed Small Cavity	Clear	50	None	Small Shell Duodecal 7 Pin	12C	100 Min., 500 Max.	Electrostatic	29,700	385	27,000	200	42-98
5ZP15 5ZP16 5ZP24	6.3	0.6	5 Diam.	14⅜	Glass	Recessed Small Cavity	Clear A	40	None	Small Shell Duodecal 6 Pin	12C	100 Min., 500 Max.	Electrostatic	29,700	385	20,000	200	42-98
													Focusing Voltage = 7700 Volts Max., Operating Voltage = 4136 to 5264 Volts.					
7ABP4 7ABP7 7ABP7A 7ABP14 7ABP14A 7ABP19 7ABP19A	6.3	0.6	7⅜ Diam.	13¼	Glass	Recessed Small Cavity	A .. A .. A .. A	50	None	Small Shell Duodecal 6 Pin	12 M	None	Electrostatic	11,000	770	7000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to 250 Volts.					
7AJP1 7AJP2 7AJP7 7AJP11 7AJP14 7AJP19 7AJP25	6.3	0.6	5½ x 5½	19	Glass	Recessed Small Cavity	Clear A	40	None	Small Shell Duodecal 6 Pin	12D	None	Magnetic	17,600	770	14,000	550	75-150
7ARP4	6.3	0.60	7⅜ Diam.	13¼	Glass	Recessed Small Cavity	Clear A	50	None	Small Shell Duodecal 6 Pin	12M	None	Electrostatic	12,000	770	10,000	330	30-67
													Focusing Voltage = −550 to +1100 Volts Max. Operating Voltage = −50 to +250 Volts.					
7AUP4	6.3	0.30	7 Diam.	8½	Glass	Small Ball Cap	Clear A	70	None	JEDEC No. E9-37	9HT	None	Electrostatic	11,000	770	8000	300	30-65
													Focusing Voltage = 1100 Volts Max. Operating Voltage = 0 to 300 Volts.					
7AVP5 7AVP11 7AVP16	6.3	0.60	7 Diam.	26	Glass	Recessed Small Cavity	Clear	19	None	JEDEC No. B5-57	12D	None	Magnetic	30,000	1000	20,000	400	55
													Grid No. 1 Voltage = 0 to −300 Volts Max. Extremely High Resolution.					
7AWP5	6.3	0.60	7 Diam.	26	Glass	Recessed Small Cavity	Clear	19	None	JEDEC No. B5-57	12D	None	Magnetic	30,000	1000	20,000	400	50
													Grid No. 1 Voltage = 0 to −300 Volts Max. Extremely High Resolution.					
7BP1 7BP2A 7BP7 7BP7B 7BP7A	6.3	0.6	7 Diam.	13¼	Glass	Recessed Small Ball	Clear	55 53 55 55 53	None	Octal 8 Pin with Sleeve	5AN	None	Magnetic	7700 8800 7700 8800 8800	740 770 330 770 770	7000 7000 7000 7000 7000	250 250 250 250 250	50 25-75 50 25-75 25-70
7CP1	6.3	0.6	7 Diam.	13⁷⁄₁₆	Glass	Recessed Small Ball	Clear	57	None	Medium Shell Octal 8 Pin	8BQ	None	Electrostatic	8800	330	7000	250	45
7CP4 7CP7 7CP18	6.3	0.6	7 Diam.	13⁷⁄₁₆	Glass	Recessed Small Ball Small Ball	Clear	57	None	Medium Shell Octal 8 Pin	8BQ	None	Electrostatic	8800	330	6000	250	25-68
7LP1 7LP2 7LP4	6.3	0.6	7 Diam.	13¼	Glass	Recessed Small Ball	A	53	None	Medium Shell Octal 8 Pin	8EQ	None	Electrostatic	19,800	450	12,000	250	27-63
													Focusing Voltage = −550 to +550 Volts Max., Operating Value = 0 Volts					

7LP7 7LP11 7LP12 7LP15 7LP16 7LP17 7LP18 7LP19 7LP20																		
7MP7 7MP14	6.3	0.6	7 3/16 Diam.	12 3/4	Glass	Recessed Small Cavity	Clear	50	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	8800	770	7000	250	27-63
7NP4	6.3	0.62	7 Diam.	19 1/2	Glass	Cap	Clear A	35	None	Small Shell Diheptal 14 Pin	14N	Not Specified	Electrostatic Focusing Voltage = 880 Volts Max., Operating Range = 400 to 600 Volts.	88,000	22,000	75,000	16,000	155
7QP4	6.3	0.6	7 3/16 Diam.	12 7/8	Glass	Recessed Small Cavity	Clear	52	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	11,000	450	8,000	300	33-77
7SP7	6.3	0.6	7 3/16 Diam.	14 1/16	Glass	Recessed Small Cavity	Clear	50	None	Small Shell Duodecal 5 Pin	12G	100 Min., 500 Max.	Magnetic	22,000	...	20,000	...	63-147
7TP4	6.3	0.6	7 3/16 Diam.	13 1/8	Glass	Recessed Small Cavity	Clear A	50	None	Small Shell Duodecal 6 Pin	12Q	None	Electrostatic Focusing Voltage = 2200 Volts Max., Operating Range = 1170 to 1590 Volts.	13,200	450	10,000	200	23-53
7UP7 7UP7A 7UP25	6.3	0.6	7 Diam.	13 1/4	Glass	Recessed Small Cavity	Clear A	53	None	Medium Shell Octal 8 Pin or 5 Pin Medium Shell Octal 8 Pin	5AN	None	Magnetic	11,000 13,200	770	7000	250	25-70
8FP4	6.3	0.6	7 7/8 x 6 1/16	11 7/16	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	550	16,000	300	40-77
8HP4	6.3	0.60	7 7/8 x 6 1/16	9 15/16	Glass	Recessed Small Cavity	Gray A	90	None	JEDEC No. B6-63	12L	350 Max., 250 Min.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 300 Volts.	14,000	550	11,000	300	33-77
8XP4	6.3	0.6	7 7/8 x 6 1/16	11 7/16	Glass	Recessed Small Cavity	Gray	90	None	Small Shell Duodecal 5 Pin	12S	None	Auto Electrostatic	22,000	550	16,000	300	33-77
8YP4	6.3	0.6	8 1/16 x 6 11/16	8 11/16	Glass	Recessed Small Cavity	Gray	110 (SN)	None	JEDEC No. B6-185 6 Pin (attachable base with conventional pins)	7FG	None	Auto Electrostatic	22,000	550	16,000	300	40-77
9GP7	6.3	0.6	9 Diam.	17	Glass	Cap	Clear	55	None	Octal 8 Pin with Sleeve	5AN	None	Magnetic	7700	330	7000	250	45
9JP1	2.5	2.1	9 Diam.	15 11/16	Glass	Recessed Small Ball	Clear	55	None	Small Wafer Octal 8 Pin with Sleeve	8BR	None	Magnetic	5500	No Grid	5000	No Grid	90
9LP7	6.3	0.6	9 Diam.	14 3/32	Glass	Cap	Clear	55	None	Octal 8 Pin with Sleeve	5AN	None	Magnetic	7700	330	7000	250	60-100
9MP7	6.3	0.6	9 Diam.	17 1/2	Glass	Cap	Clear	55	None	Octal 8 Pin with Sleeve	5AN	None	Magnetic	7700	330	6000	250	25-75
10ABP4 10ABP4A 10ABP4B 10ABP4C	6.3	0.6	9 3/4 x 7 1/2	11 7/8	Glass	Recessed Small Cavity	Clear CA Gray GA	90	Single	Small Shell Duodecal 6 Pin	12L	400 Min., 850 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +500 Volts.	13,200	550	7500	300	43-67
10KP7 10KP7A 10KP7B 10KP17 10KP25	6.3	0.6	10 1/2 Diam.	17 5/8	Glass	Recessed Small Cavity	Gray Gray GA CA GA	50	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	11,000 11,000 13,200 13,200 13,200	770	9000 9000 10,000 9600 9000	250 250 300 250 250	27-63 25-70 35-72 27-63 25-70
10NP11	6.3	0.6	10 1/2 Diam.	17 5/8	Glass	Recessed Small Cavity	Gray A	52	None	Small Shell Duodecal 5 Pin	12G	500 Min., 1500 Max.	Magnetic	27,500	No Grid	18,000	No Grid	65-125
10QP7	6.3	0.6	10 1/2 Diam.	17 3/16	Glass	Recessed Small Cavity	Clear	50	None	Small Shell Duodecal 5 Pin	12G	100 Min., 500 Max	Magnetic	22,000	...	20,000	...	63-147
10SP4	6.3	0.60	10 1/2 Diam.	16 5/8	Glass	Recessed Small Cavity	Gray A	50	None	Small Shell Duodecal 6 Pin	12Q	None	Electrostatic Focusing Voltage = 3300 Volts Max., Operating Voltage = 1640 to 2225 Volts.	22,000	450	14,000	200	23-53
10UP14 10UP14A 10UP21	6.3	0.6	10 1/2 Diam.	17 5/8	Glass	Recessed Small Cavity	Clear CA GA	50	None	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −150 to +150 Volts. Operating Range = 0 to +200 Volts.	13,200	770	10,000	300	33-77
10VP7 10VP15	6.3	0.6	10 1/2 Diam.	17 5/8	Glass	Recessed Small Cavity	Clear A	50	None	Small Shell Duodecal 5 Pin	12N	500 Min., 2500 Max.	Magnetic	13,200	450	11,000	250	33-77
10WP7 10WP7A 10WP14 10WP14A 10WP19 10WP19A	6.3	0.6	10 1/2 Diam.	16 15/16	Glass	Recessed Small Cavity	Gray GA Gray GA Gray GA	50	None	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to 300 Volts.	13,200	770	10,000	300	33-77
12ABP7 12ABP7A 12ABP14 12ABP14A 12ABP19 12ABP19A	6.3	0.6	12 7/16 Diam.	18	Glass	Recessed Small Cavity	Gray GA Gray GA Gray GA	55	None	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to 300 Volts.	13,200	770	10,000	300	33-77

Note 1: Diagonal Deflection Angles are given for rectangular types.

* Voltage measured from the accelerator grid to the control grid.

* Control grid bias for visual extinction of undeflected focused spot. Visual extinction of focused raster will generally require about 5 volts less bias.

‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.

§ Commonly used Screens listed, others may be available on certain types.

INDUSTRIAL & MILITARY MAGNETIC DEFLECTION TYPES

§ Type No.	Heater Volts	Heater Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1)	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating μμf.	Focusing Method	Absolute Max. Ratings: Anode Volts	Absolute Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
12AFP7 12AFP7A 12AFP14 12AFP14A 12AFP19 12AFP19A	6.3	0.6	12 7/16 Diam.	18 5/16 Max.	Metal	Cone Lip	Gray GA Gray GA Gray GA	54	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	15,400	1100	12,000	500	33-77
12AGP7 12AGP7A 12AGP14 12AGP14A 12AGP19 12AGP19A	6.3	0.6	12 7/16 Diam.	18 5/16 Max.	Metal	Cone Lip	Gray GA Gray GA Gray GA	54	None	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −48 to +264 Volts.	15,400	1100	12,000	500	33-77
12DP7 12DP7A 12DP7B 12DP7C	6.3	0.6	12 Diam.	20 3/4 19 5/8 19 5/8 19 5/8	Glass	Medium Cap	Clear Gray Gray GA	55 50 50 50	None	Long Medium Shell Octal 5 or 8 Pin	5AN	None	Magnetic	7700 11,000 11,000 13,200	330 770 770 770	7000	250	25-70
12SP7 12SP7B 12SP7D	6.3	0.6	12 7/16 Diam.	18 3/4	Glass	Recessed Small Cavity	Clear GA GA	55	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	11,000 11,000 15,000	450 550 770	9000	250	27-63
16AFP19	6.3	0.6	14 3/4 x 11 1/2	19 5/32	Glass	Recessed Small Cavity	Clear A	70	...	Small Shell Duodecal 7 Pin with Pin No. 7 having no connection	12L	None	Electrostatic Focusing Voltage = −550 to +550 Volts Max., Operating Value = 0 Volts.	17,600	450	12,000	250	27-63
16AKP7	6.3	0.60	15 7/8 Diam.	22 1/16	Glass	Recessed Small Cavity	Gray A	53	None	Small Shell Duodecal 7 Pin	12M	None	Electrostatic Focusing Voltage = 1000 Volts Max., Operating Voltage = −0 to +400 Volts.	15,400	500	12,000	300	35-75
17BCP1 17BCP2 17BCP7 17BCP11 17BCP19	6.3	0.6	15 3/8 x 12 1/4	19 1/4	Glass	Recessed Small Cavity	A	70	None	Small Shell Duodecal 7 Pin with Pin No. 7 having no connection	12M	None	Electrostatic Focusing Voltage = −550 to +550 Volts Max., Operating Value = 0 Volts.	17,600	550	12,000	250	27-63
22CP7 22CP14 22CP19 22CP25	6.3	0.6	21 3/4 Diam.	22 1/16	Metal	Cone Lip	Clear	70	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	17,600	1100	12,000	300	33-77
22DP7 22DP14 22DP19 22DP25	6.3	0.6	21 3/4 Diam.	22 1/16	Metal	Cone Lip	Clear	70	None	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −48 to +264 Volts.	17,600	1100	12,000	300	33-77
SC-2782	6.3	0.60	5 Diam.	16	Glass	Special Molded	Clear A	50	None	Small Shell Duodecal 5 Pin	12N	100 Min., 500 Max.	Magnetic Extremely High Resolution P11 Phosphor	25,000	2500	20,000	2000	33-77

Note 1: Diagonal Deflection Angles are given for rectangular types.
* Voltage measured from the accelerator grid to the control grid.
* Control grid bias for visual extinction of undeflected focused spot. Visual extinction of focused raster will generally require about 5 volts less bias.

‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.
§ Commonly used Screens listed, others may be available on certain types.

INDUSTRIAL & MILITARY ELECTROSTATIC DEFLECTION TYPES

§ Type No.	Heater		Nominal Dimensions		Base	Basing	Screen		Absolute Maximum Ratings◊				Typical Operating Conditions					
	Volts	Amperes	Diameter Inches	Length Inches			Fluorescence	Persistence	Anode #1 Volts	Anode #2 Volts	Anode #3 Volts	Anode #2 to Deflection Plate Peak Volts	Anode #2 Volts	Anode #1 Avg. Volts**	Anode #3 Volts	Cutoff Voltage*	Deflection Avg. Volts DC/Inch D 1-2	Deflection Avg. Volts DC/Inch D 3-4
1DP1 1DP4 1DP7 1DP11	6.3	.215	7/8 Max.	3 Max.	Miniature 9 Pin	9CU	Green White See Chart for P7 Blue	Medium Medium Short	330	1100	....	....	600	150	....	100	350	300
2AP1 2AP1A	6.3	0.6	2	7 7/16	Small Shell Magnal 11 Pin	11B 11L	Green	Medium	550	1100	....	660	500 1000	125 250	....	15-45 30-90	115 230	98 196
2BP1 2BP11	6.3	0.6	2 1/16	7 5/8	Small Shell Duodecal 10 Pin or 12 Pin	12E	Green Blue	Medium Short	1100	2750	....	550	2000	300-560	....	135 Max.	230-310	148-200
3AP1 3AP1A 3AP4	2.5	2.1	3	11 1/2	Medium 7 Pin	7AN 7CE 7AN	Green Green White	Medium Medium Medium	1100	1650	....	660	600 1500	170 430	....	14-40 25-75	47 114	45 109
3ABP1 3ABP2 3ABP7 3ABP11	6.3	1.2	3	10 3/4	Medium Shell Diheptal 14 Pin	14T	Green Green See Chart for P7 Blue	Medium Long Short	1100	2200 Two Beam Types	6600	600	2000	480	4000	45-75	164-198	148-181
3ACP1 3ACP2 3ACP7 3ACP11	6.3	0.6	3	10	Medium Shell Diheptal 12 Pin	14J	Green Green See Chart for P7 Blue	Medium Long Short	1650	2200	6600	600	2000	545	4000	45-75	180-220	133-163
3ACP1A 3ACP2A 3ACP7A 3ACP11A 3ACP12A	6.3	0.60	3	10	Medium Shell Diheptal 12 Pin	14J	Green Green See Chart for P7 Blue See Chart for P12	Medium Long Short 	1650	2200	6600	600	2000	390-550	4000	45-75	175-205	138-158
3ADP1 3ADP2 3ADP7 3ADP11	6.3	0.6	3	10	Small Shell Duodecal 12 Pin	12Z	Green Green See Chart for P7 Blue	Medium Long Short	1100	3300	6600	600	2000	320-470	4000	52-87	140-160	61-70
3AHP1 3AHP2 3AHP7 3AHP11	6.3	0.60	3 x 1 1/2	9 1/8	JEDEC No. B12-43	12E	Green Green See Chart for P7 Blue	Medium Long Short	1200	3000	....	600	2000	330-620	....	58-135	146-198	52-70
3AQP1 3AQP2 3AQP7 3AQP11	6.3	0.6	3	9 1/8	Small Shell Duodecal 12 Pin	12E	Green Green See Chart for P7 Blue	Medium Long Short	1200	3000	....	600	2000	330-620	....	58-135	146-198	52-70
3ASP1 3ASP2 3ASP11	6.3	0.60	3 1/64 x 1 1/2	8 15/16	JEDEC No. B8-218	8KF	Green Green Blue	Medium Long Short	1200	3000	....	600	2000	400-700	....	40-70	68-92	28-38
3BP1 3BP1A	6.3	0.6	3	10	Medium Shell Diheptal 12 Pin	14A 14G	Green	Medium	1100	2200	....	550	1500 2000	430 575	....	22.5-67.5 30-90	168 200	123 148
3CP1	6.3	0.6	3	10 3/8	Medium Magnal 11 Pin, Sleeve	11C	Green	Medium	1100	2200	....	550	2000	575	....	30-90	124	165
3DP1 3DP1A 3DP1S2A 3DP7	6.3	0.6	3	10 7/16	Medium Shell Diheptal 12 Pin	14C 14H 14H 14H	Green Green Green See Chart for P7	Medium Medium Medium 	1100	2200	....	550	1500 2000 2000 1500	430 575 575 280-516	....	22.5-67.5 30-90 30-90 22.5-67.5	166 220 220 150	123 148 148 111
3EP1	6.3	0.6	3	9 5/16	Large Wafer Magnal 11 Pin, Sleeve	11N	Green	Medium	1100	2200	....	550	2000	575	....	30-90	221	165
3FP7 3FP7A	6.3	0.6	3	10	Medium Shell Diheptal 12 Pin	14B 14J	See Chart for P7		1100	2200	4400	550	2000 2000	575 575	2000 4000	30-90 30-90	221 250	164 180
3GP1 3GP4 3GP5	6.3	0.6	3	11 1/2	Medium Shell Magnal 11 Pin	11A	Green White See Chart for P5	Medium Medium 	1100	1650	....	550	1000 1500	234 350	....	16.5-49.5 25-75	80 120	70 105
3GP1A 3GP4A 3GP11A	6.3	0.6	3	11 1/2	Medium Shell Magnal 11 Pin	11N	Green White Blue	Medium Medium Short	1100	1650	....	600	1500	245-437	....	25-75	96-144	84-126
3JP1 3JP2 3JP7 3JP12	6.3	0.6	3	10	Medium Shell Diheptal 12 Pin	14J	Green Green See Chart for P7 See Chart for P12	Medium Long 	1100	2200	4400	550	2000 1500	400-690 300-515	4000 3000	30-90 22.5-67.5	170-230 127-173	125-270 94-128

§Commonly used screens listed, others may be available for many types.
*Control grid bias for visual extinction of undeflected focused spot. Supply should be adjusted from 0 to value shown.
**Bogey value for focus. Voltage should be adjusted about value shown.

INDUSTRIAL & MILITARY ELECTROSTATIC DEFLECTION TYPES

§ Type No.	Heater		Nominal Dimensions		Base	Basing	Screen		Absolute Maximum Ratings♦				Typical Operating Conditions					
	Volts	Amperes	Diameter Inches	Length Inches			Fluorescence	Persistence	Anode #1 Volts	Anode #2 Volts	Anode #3 Volts	Anode #2 to Deflection Plate Peak Volts	Anode #2 Volts	Anode #1 Avg. Volts**	Anode #3 Volts	Cutoff Voltage*	Deflection Avg. Volts DC/Inch D 1-2	Deflection Avg. Volts DC/Inch D 3-4
3JP1A 3JP7A 3JP11A	6.3	0.6	3	10	Medium Shell Diheptal 12 Pin	14J	Green See Chart for P7 Blue	Medium Short	1650	2200	6600	600	2000	400-690	4000	45-75	180-220	133-163
3KP1 3KP4 3KP7 3KP11 3KP16	6.3	0.6	3	11½	Medium Shell Magnal 11 Pin	11M	Green White See Chart for P7 Blue See Chart for P16	Medium Medium Short	1100	2750	....	550	1000 2000	160-300 320-600	....	0-45 0-90	50-68 100-136	38-52 76-104
3MP1	6.3	0.6	3	8	Small Shell Duodecal 12 Pin	12F	Green	Medium	1100	2750	....	550	2000	400-700	....	126 Max.	230-290	220-280
3QP1	6.3	0.3	2¾	6⅛	European 9 Pin	9D	Green	Medium	770	1650	....	600	1200	240-480	....	31-74	214-290	133-181
3RP1 3RP1A 3RP4	6.3	0.6	3	9⅛	Small Shell Duodecal 12 Pin	12E	Green Green White	Medium	1100	2750	....	550	2000	330-620	....	135	146-198	104-140
3SP1 3SP2 3SP4 3SP5 3SP11	6.3	0.60	3 x 1½	9⅛	Small Shell Duodecal 12 Pin	12E	Green Green White See Chart for P5 Blue	Medium Long Medium Short	1200	3000	....	550	2000	330-620	....	58-135	146-198	104-140
3UP1	6.3	0.6	2⅛ x 1 9/16	7½	Small Shell Duodecal 12 Pin	12F	Green	Medium	1100	2750	....	550	2000	320-620	....	126 Max.	240-310	232-296
3WP1 3WP2 3WP11	6.3	0.6	3	11½	Small Shell Duodecal 10 Pin or 12 Pin	12T	Green Green Blue	Medium Long Short	1100	2750	....	550	2000	330-620	....	60-100	83-101	57-70
3XP1 3XP2 3XP7 3XP11	6.3	0.60	3 x 1½	8⅞	Lock-in 8 Pin	3XP1	Green Green See Chart for P7 Blue	Medium Long Short	1200	3000	....	600	2000	400-700	....	67.5 Max.	68-92	28-38
3YP1 3YP2 3YP7 3YP11	6.3	0.60	3 x 1 15/32	7	Lock-in 8 Pin	3YP1	Green Green See Chart for P7 Blue	Medium Long Short	1200	3000	....	600	2000	370-680	....	56-134	136-184	88-120
4DP1 4DP2 4DP7 4DP11	6.3	0.6	3½ x 3½	12¼	Medium Shell Diheptal 12 Pin	4DP1	Green Green See Chart for P7 Blue	Medium Long Short	1650	3300	6600	825	2000	335-615	4000	52-87	115-140	90-115
4KP1 4KP11	6.3	0.6	3½ x 3½	11 1/16	Small Shell Duodecal 12 Pin	4KP1	Green Blue	Medium Short	1100	2750	....	550	1500	255-545	....	36-60	62-76	36-46
4MP1 4MP2 4MP7 4MP11	6.3	0.60	3½ x 3½	13¾	JEDEC No. B12-43	12Z	Green Green See Chart for P7 Blue	Medium Long Short	1100	3300	6600	600	2000	340-510	4000	52-87	68-82	42-52
5AP1	6.3	0.6	5¼	13	Large Wafer Magnal 11 Pin, Sleeve	11A	Green	Medium	1300	2200	....	550	1500	430	....	31-57	93	90
5AP4	6.3	0.6	5¼	13	Large Wafer Magnal 11 Pin, Sleeve	11A	White	Medium	1300	2200	....	550	1500	430	....	17.6-57	93	90
5ABP1 5ABP2 5ABP7 5ABP11	6.3	0.6	5¼	16¾	Medium Shell Diheptal 12 Pin	14J	Green White See Chart for P7 Blue	Medium Medium Short	1100	2860	6600	550	2000	400-690	4000	52-87	53-72	36-48
5ADP1 5ADP2 5ADP7 5ADP11	6.3	0.6	5¼	16¾	Medium Shell Diheptal 12 Pin	14J	Green Green See Chart for P7 Blue	Medium Long Short	1100	2860	6600	550	1500	300-515	3000	34-56	40-50	30.5-37.5
5AFP1 5AFP2 5AFP7 5AFP11	6.3	0.6	5¼	18¼	Medium Shell Diheptal 12 Pin	5AFP1	Green Green See Chart for P7 Blue	Medium Long Short	1900	3850 Two Beam Types	11,500	825	2000	400-684	4000	45-75	54-66	49-60
5AJP1 5AJP2 5AJP4 5AJP5 5AJP7 5AJP11 5AJP12 5AJP14 5AJP16	6.3	0.60	5	9⅞	Small Shell Duodecal 12 Pin	5AJP1	Green Green White See Chart for P5 See Chart for P7 Blue See Chart for P12 See Chart for P14 See Chart for P16	Medium Long Medium Short	1650	2750	11,000	550	750	400-900	6000	30-60	230	230

5AJP19 5AJP20							Orange Long Yellow Short										
5AMP1 5AMP2 5AMP7 5AMP11	6.3	0.6	5¼	17⅝	Medium Shell Diheptal 12 Pin	14U	Green Medium Green Long See Chart for P7 Blue Short	1650	6600	....	1300	2500	0-300	....	34-56	40-50	20-25
5AQP1 5AQP1A 5AQP2 5AQP2A 5AQP7 5AQP7A 5AQP11 5AQP11A	6.3	0.60	5¼	16¾	Medium Shell Diheptal 12 Pin	14G	Green Medium Green Medium Green Long Green Long See Chart for P7 See Chart for P7 Blue Short Blue Short	1650	4400	....	1300	2500	0-300	....	34-56	40-50	31.5-38.5
5ATP1 5ATP2 5ATP7 5ATP11	6.3	0.6	5¼	17⅝	Medium Shell Diheptal 12 Pin	14V	Green Medium Green Long See Chart for P7 Blue Short	1100	11,000	....	2200	6000	0-700	....	34-56	94-116	34-42
5AWP1 5AWP2 5AWP7 5AWP11	6.3	0.6	5¼	16¾	Medium Shell Diheptal 12 Pin	14P	Green Medium Green Long Blue Long Blue Short	1650	3850	16,500	1300	2300	500-730	10,300	33-55	113-128	113-128
5BP1 5BP4	6.3	0.6	5¼	16¾	Large Wafer Magnal 11 Pin	11A	Green Medium White Medium	1100	2200	....	550	1500 2000	310 425	....	20-60	63 84	57 76
5BP1A	6.3	0.6	5¼	16¾	Medium Shell Magnal 11 Pin	11N	Green Medium	1100	2200	....	550	2000	450	....	20-60	84	76
5BP7A	6.3	0.6	5¼	16¾	Medium Shell Magnal 11 Pin	11N	See Chart for P7	1100	2200	....	550	2000	315-560	....	20-60	70-98	63-89
5BDP1 5BDP2 5BDP7 5BDP11	6.3	0.6	5¼	18¼	Medium Shell Diheptal 12 Pin	5BDP1	Green Medium Green Long See Chart for P7 Blue Short	1700	3850 Two Beam Types	28,000	1300	2000	400-630	14,000	45-75	130-160	111-133
5BGP1 5BGP2 5BGP5 5BGP7 5BGP11 5BGP15	6.3	0.60	5¼	17½	Medium Shell Diheptal 12 Pin	14AF	Green Medium Green Long See Chart for P5 See Chart for P7 Blue Short See Chart for P15	880	2200	13,200	550	1670	180-590 Isolation Shield Voltage = 2300 Volts Max. Isolation Shield Voltage = 1575 to 1700 Volts. (Typical Operating Values)	10,000	50-80	70-86	28.4-34.8
5BHP1 5BHP2 5BHP4 5BHP5 5BHP7 5BHP11 5BHP15 5BHP26 5BHP28	6.3	0.60	5¼	18¼	Medium Shell Diheptal 12 Pin	14AG	Green Medium Green Long White Medium See Chart for P5 See Chart for P7 Blue Short See Chart for P15 See Chart for P26 See Chart for P28	880	2200	13,200	550	1670	180-590 Isolation Shield Voltage = 2300 Volts Max. Isolation Shield Voltage = 1575 to 1700 Volts. (Typical Operating Values)	10,000	50-80	70-85	15-18.3

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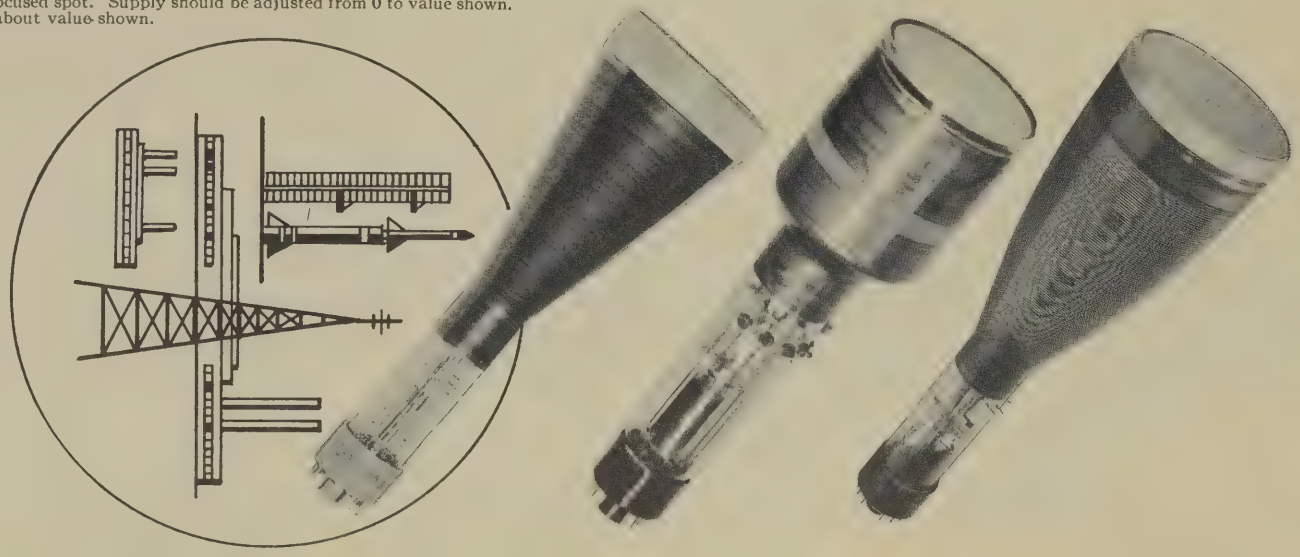
*Control grid bias for visual extinction of undeflected focused spot. Supply should be adjusted from 0 to value shown.
**Bogey value for focus. Voltage should be adjusted about value shown.

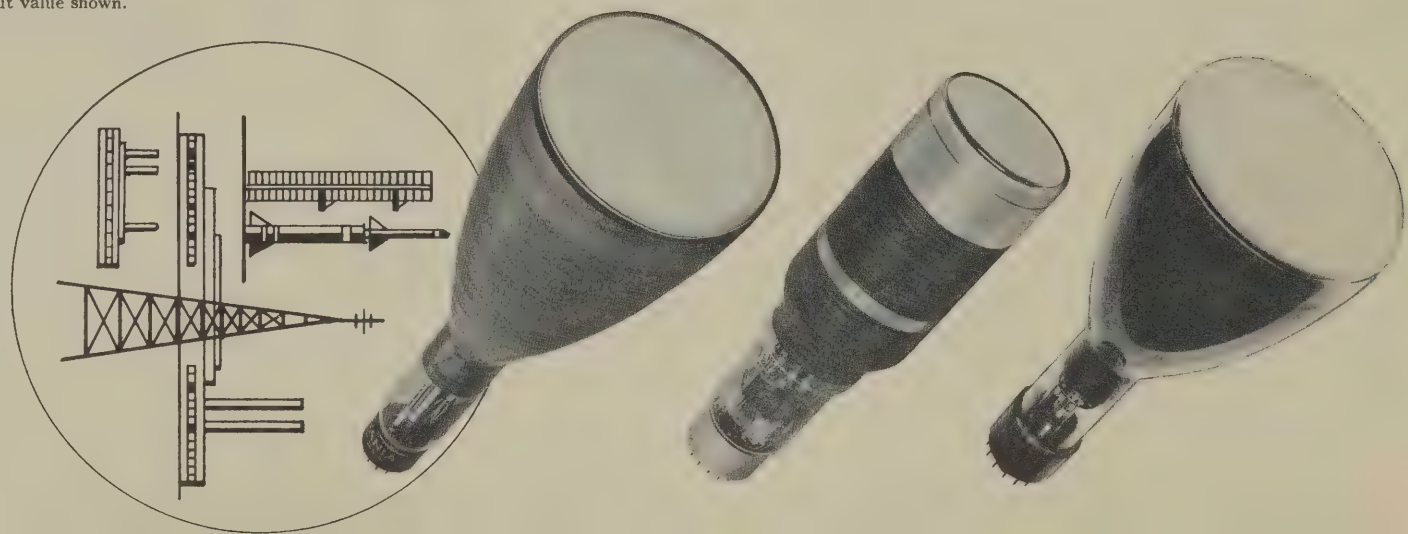


INDUSTRIAL & MILITARY ELECTROSTATIC DEFLECTION TYPES

§ Type No.	Heater		Nominal Dimensions		Base	Basing	Screen		Absolute Maximum Ratings♦				Typical Operating Conditions					
	Volts	Amperes	Diameter Inches	Length Inches			Fluorescence	Persistence	Anode #1 Volts	Anode #2 Volts	Anode #3 Volts	Anode #2 to Deflection Plate Peak Volts	Anode #2 Volts	Anode #1 Avg. Volts**	Anode #3 Volts	Cutoff Voltage*	Deflection Avg. Volts DC/Inch D 1-2	Deflection Avg. Volts DC/Inch D 3-4
5BTP1 5BTP2 5BTP7 5BTP11	6.3	0.60	5¼	12	JEDEC No. B12-43 12 Pin	5BTP1	Green Green See Chart for P7 Blue	Medium Long Short	1200	3000	4800	....	1500	570-772	3000	40-94	81-109	43-58
5CAP1 5CAP2 5CAP7 5CAP11	6.3	0.6	5¼	17½	Medium Shell Diheptal 12 Pin	14AF	Green Green See Chart for P7 Blue	Medium Long Short	880	2200	6600	440	1850	225-670 Isolation Shield Voltage = 2300 Volts Max. Isolation Shield Voltage = 1750 to 2000 Volts. (Typical Operating Values)	6000	60-85	48-60	22-27
5CBP1 5CBP2 5CBP7 5CBP11	6.3	0.6	5¼	18¾	Medium Shell Diheptal 12 Pin	14AG	Green Green See Chart for P7 Blue	Medium Long Short	880	2200	6600	550	1900	190-565 Isolation Shield Voltage = 2300 Volts Max. Isolation Shield Voltage = 1775 to 1975 Volts. (Typical Operating Values)	4000	62-85	48-58.5	15-19
5CP1 5CP4 5CP7 5CP1A 5CP7A 5CP11A 5CP12	6.3	0.6	5¼	16¾	Medium Shell Diheptal 12 Pin	14B 14B 14B 14J 14J 14J 14J	Green White See Chart for P7 Green See Chart for P7 Blue Orange	Medium Medium Medium Short Med. Long	1100	2200	4400	550	2000	575	4000	30-90	92	79 78 78 74 74 74
5CP1B 5CP2B 5CP7B 5CP11B	6.3	0.6	5¼	16¾	Medium Shell Diheptal 12 Pin	14J	Green Green See Chart for P7 Blue	Medium Long Short	1100	2200	4400	550	2000	400-690	4000	45-75	83-101	70-86
5GP1	6.3	0.6	5¼	16¾	Large Wafer Magnal 11 Pin, Sleeve	11A	Green	Medium	1100	2200	....	550	2000	425	....	24-56	36	72
5HP1 5HP4	6.3	0.6	5¼	16¾	Large Wafer Magnal 11 Pin, Sleeve	11A	Green White	Medium Medium	1100	2200	....	550	1500 2000	310 425	....	15-45 20-60'	63.5 84.8	57.8 77.0
5HP1A	6.3	0.6	5¼	16¾	Large Wafer Magnal 11 Pin, Micanol	11N	Green	Medium	1100	2200	....	550	2000	450	....	20-60	84	76
5JP1A 5JP4A	6.3	0.6	5⅝	16¾	Medium Magnal 11 Pin	11S	Green White	Medium Medium	1100	2200	4400	550	2000	333-630	4000	45-105	77-115	77-115
5JP1A 5JP2A 5JP4A 5JP5A 5JP7A 5JP11A	6.3	0.60	5⅝	16¾	Medium Magnal 11 Pin, Sleeve	11S	Green Green White See Chart for P5 See Chart for P7 Blue	Medium Long Medium Short	1100	2200	4400	550	2000	500	4000	45-105	96	96
5LP1 5LP2 5LP4 5LP5	6.3	0.6	5⅝	16¾	Medium Magnal 11 Pin, Sleeve	11F	Green Green White See Chart for P5	Medium Long Medium 	1100	2200	4400	550	2000	500	4000	30-90	103	90
5LP1A 5LP2A 5LP4A 5LP5A 5LP7A 5LP11A	6.3	0.60	5⅝	16¾	Medium Magnal 11 Pin, Sleeve	11T	Green Green White See Chart for P5 See Chart for P7 Blue	Medium Long Medium Short	1100	2200	4400	600	2000	376-633	4000	30-90	83-124	72-108
5MP1 5MP4 5MP5	2.5	2.1	5⅝	15⅞	Large 7 Pin	7AN	Green White See Chart for P5	Medium Medium 	1100	1650	....	660	1000 1500	250 375	....	16.5-49.5 15-45	66	60
5NP1 5NP4	6.3	0.6	5⅝	16¾	Large Wafer Magnal 11 Pin, Sleeve	11A	Green White	Medium Medium	1100	2200	....	550	1500 2000	337 450	....	15-45 20-60	84	76
5RP1 5RP4	6.3	0.6	5¼	16¾	Medium Shell Diheptal 12 Pin	14F	Green White	Medium Medium	1700	3850	28,000	1300	2000	528	20,000	30-90	140-210	131-197
5RP1A 5RP2A 5RP4A 5RP5A 5RP7A 5RP11A	6.3	0.60	5¼	16¾	Medium Shell Diheptal 12 Pin	14P	Green Green White See Chart for P5 See Chart for P7 Blue	Medium Long Medium Short	1700	3850	28,000	1300	2000	362-695	20,000	30-90	140-210	131-197
5SP1 5SP2 5SP4 5SP5 5SP7 5SP11	6.3	0.60	5¼	18¼	Medium Shell Diheptal 12 Pin	14K	Green Green White Blue See Chart for P7 Blue	Medium Long Medium Short Short	1100	2200 Two Beam Types	6600	600	2000	363-695	4000	30-90	74-110	62-94

5SP1A 5SP2A 5SP7A 5SP11A	6.3	0.6	5¼	18¼	Medium Shell Diheptal 12 Pin	14K	Green Medium Green Long See Chart for P7 Blue Short	1100	2750	8250 Two Beam Types	600	2000	363-695	4000	45-75	83-101	70-86
5UP1 5UP7 5UP11	6.3	0.6	5¼	14¾	Small Shell Duodecal 10 or 12 Pin	12E	Green Medium See Chart for P7 Blue Short	1100	2750	....	550	2000	340-640	....	90	56-77	46-62
5VP7	6.3	0.6	5¼	16¾	Medium Shell Magnal 11 Pin	11N	See Chart for P7	1100	2750	....	550	2000	315-562	....	20-60	70-98	63-89
5XP1 5XP2 5XP11	6.3	0.6	5¼	17⅝	Medium Shell Diheptal 12 Pin	14P	Green Medium Green Long Blue Short	1700	3850	28,000	1300	2000	362-695	20,000	30-90	140-210	46-68
5XP1A 5XP1B 5XP2A 5XP2B 5XP11A 5XP11B	6.3	0.6	5¼	17⅝	Medium Shell Diheptal 12 Pin	14P	Green Medium Green Medium Green Long Green Long Blue Short Blue Short	1700	4000	28,000	1300	2000	362-695	12,000	45-75	130-159	42-52
5YP1 5YP2 5YP7 5YP11	6.3	0.6	5¼	17⅝	Small Shell Diheptal 12 Pin	14Q	Green Medium Green Long See Chart for P7 Blue Short	1700	3850	8800	1300	3000	541-1040	6000	45-135	108-162	36-54
6DP1 6DP2 6DP7 6DP11 6DP14 6DP19 6DP25	6.3	1.75	5$^{27}/_{32}$	20$^{1}/_{16}$	JEDEC No. B25-139 25 Pin	6DP1	Green Medium Green Long See Chart for P7 Blue Short See Chart for P14 Orange Long Orange Very Long	1550	4500	15,000	600	4000	950-1225	12,000	75-124	112-138	105-130
7ACP2 7ACP7 7ACP19	6.3	1.8	6$^{1}/_{32}$ x 4$^{1}/_{32}$	17¾	Sepcial 25 Pin	7ACP2	Green Long See Chart for P7 Orange Long	3000	3850	11,500 Three Beam Types	1100	3000	595-1020	9000	87-112	86-130	84-126
7AEP1 7AEP2 7AEP7 7AEP11	6.3	0.6	7	15½	Medium Shell Diheptal 12 Pin	14J	Green Medium Green Long See Chart for P7 Blue Short	1375	4400	8800	825	2000	380-620	4000	45-75	81-101	67-83
7AKP19 7AKP25	6.3	0.60	6$^{1}/_{32}$ x 4$^{1}/_{32}$	17⅞	JEDEC No. B25-139 25 Pin	7AKP19	Orange Long Orange Very Long	2800	5500	11,000	1100	4000	1150-1500	7300	50-120	180-225	140-170
7ATP7	6.3	0.60	7⅜	17⅛	JEDEC No. B12-37 12 Pin	14J	See Chart for P7	1200	2200	6600	1650	2000	392-672	4000	40-80	72-108	64-96
7JP1 7JP4 7JP7	6.3	0.6	7	14½	Medium Shell Diheptal 12 Pin	14R	Green Medium White Medium See Chart for P7	3100	6600	....	825	6000	1620-2400	....	72-168	186-246	150-204
7VP1	6.3	0.6	7	14½	Medium Shell Diheptal 12 Pin	14R	Green Medium	2200	4400	....	825	3000	800-1200	....	84	93-123	75-102

§Commonly used screens listed, others may be available for many types.
*Control grid bias for visual extinction of undeflected focused spot. Supply should be adjusted from 0 to value shown.
**Bogey value for focus. Voltage should be adjusted about value shown.

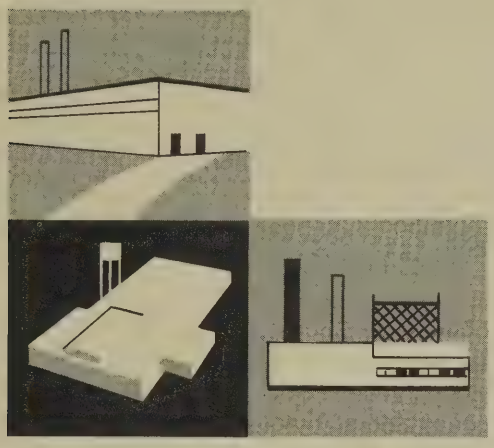


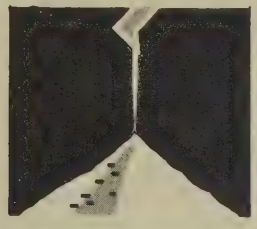
INDUSTRIAL & MILITARY ELECTROSTATIC DEFLECTION TYPES

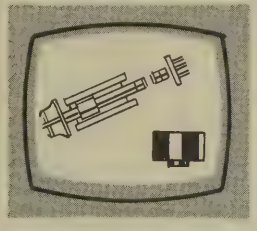
§Type No.	Heater		Nominal Dimensions		Base	Basing	Screen		Absolute Maximum Ratings♦				Typical Operating Conditions					
	Volts	Amperes	Diameter Inches	Length Inches			Fluorescence	Persistence	Anode #1 Volts	Anode #2 Volts	Anode #3 Volts	Anode #2 to Deflection Plate Peak Volts	Anode #2 Volts	Anode #1 Avg. Volts**	Anode #3 Volts	Cutoff Voltage*	Deflection Avg. Volts DC/Inch D 1-2	Deflection Avg. Volts DC/Inch D 3-4
7XP2	6.3	0.6	7	18⅝	Special 25 Pin	....	Green	Long	1200	2400 Five Beam Types	4800	900	2000	440-750	4000	22.5-67.5	63-105	59-94
7YP1	6.3	0.6	5½ x 5½	18½	Special 25 Pin	....	Green	Medium	1650	3850 Five Beam Types	7700	1375	2000	450-700	4000	50-90	60-90	28-45
7YP2							Green	Long										
7YP4							White	Medium										
7YP7							See Chart for P7											
7YP11							Blue	Short										
8CP1	6.3	0.6	8⅜	16½	Medium Shell Diheptal 12 Pin	14J	Green	Medium	2750	6600	6600	550	2000	540-800	4000	24-56	58-81	49-68
8CP2							Green	Long										
8CP4							White	Medium										
8CP5							See Chart for P5											
8CP7							See Chart for P7											
8CP11							Blue	Short										
9NP1	2.5	2.1	9	21	Medium 6 Pin	6BN	Green	Medium	1650	6000	....	1650	5000	1150	....	45-135	190	175
12ACP2	6.3	0.6	12⅞	24⅞	Medium Shell Diheptal 12 Pin	12ACP2	Green	Long	4400	11,000	....	2750	7500	1750-2500	....	150-225	140-190	130-180
12ACP7							See Chart for P7											
12ACP14							See Chart for P14											
12ACP19							Orange	Long										
12ACP25							Orange	Very Long										
12FP7	6.3	0.6	12	24	Medium Shell Diheptal 12 Pin	14E	See Chart for P7		2200	4400	8800	1100	4000	1250	8000	30-90	110	125
12GP7	6.3	0.6	12	22	Medium Shell Diheptal 12 Pin	14S	See Chart for P7		2200	4400	6600	1100	4000	1143	6000	65-195	108	101
12HP1	6.3	0.6	12	23½	Medium Magnal 11 Pin, Sleeve	11J	Green	Medium	1650	6000	....	1100	5000	1150	....	45-135	95	125
12HP7							See Chart for P7											
14AP1	2.5	2.1	13⅜	24¼	12 Pin Peripheral Contract	12A	Green	Medium	2000	4400	8800	....	4000	1000	8000	40-120	130	130
14AP2							Green	Long										
14AP4							White	Medium										
14AP5							See Chart for P5											
20AP1	2.5	2.1	20	27⅞	12 Pin Peripheral Contact	12A	Green	Medium	2000	4400	8800	....	4000	1000	8000	40-120	110	110
20AP4						12A	White	Medium										
902	6.3	0.6	2	7½	Medium Shell Octal 8 Pin	8CD	Green	Medium	330	660	....	385	600	150	....	30-90	139	117
902-A	6.3	0.6	2	7⅞	Medium Shell Octal 8 Pin	8CD	Green	Medium	330	660	....	385	600	150	....	30-90	139	117
905	2.5	2.1	5¼	16½	Long Shell Medium 5 Pin Micanol	5BP	Green	Medium	660	2200	....	1100	2000	450	....	17.5-52.5	115	97
907							Blue	Very Short										
909							Bluish-White	Long										
905-A	2.5	2.1	5¼	16½	Long Shell Medium 5 Pin Micanol	5BR	Green	Medium	660	2200	....	1100	2000	450	....	17.5-52.5	115	97
908	2.5	2.1	3	11½	Medium 7 Pin	7CE	Bluish	Very Short	1100	1650	....	660	1500	430	....	25-75	114	109
908-A	2.5	2.1	3	11½	Medium 7 Pin	7CE	Blue	Very Short	1100	1650	....	550	1500	430	....	25-75	114	109
912	2.5	2.1	5¼	16½	Medium 5 Pin Micanol	912	Green	Medium	5000	16,500	....	7700	15,000	3000	250 #2 Grid Voltage	30-90	915	750
913	6.3	0.6	1⅝	4¾	Small Wafer Octal 8 Pin	913	Green	Medium	220	550	....	275	500	100	....	20-60	299	221
914	2.5	2.1	9¼	21½	6 Pin	6BF	Green	Medium	2000	7700	....	3300	7000	1550	....	25-75	322	259
914A	2.5	2.1	9¼	20⅛	6 Pin	6BF	Green	Medium	2000	7700	....	3300	7000	1550	....	25-75	322	259
VCR 139A	4.0	1.1	2¾	7⅞	European	VCR 139A	Green	Medium	1100	1100	....	800	800	120-150	....	7-16	104	140

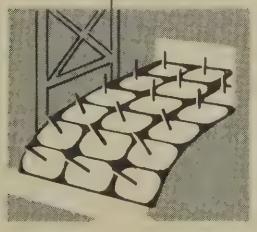
§Commonly used screens listed, others may be available for many types.
*Control grid bias for visual extinction of undeflected focused spot. Supply should be adjusted from 0 to value shown.
**Bogey value for focus. Voltage should be adjusted about value shown.

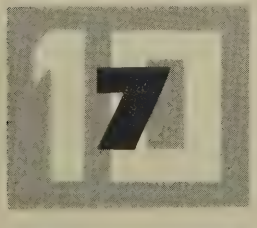
FIVE REASONS WHY SYLVANIA MAKES "AMERICA'S MOST WANTED PICTURE TUBES"











1. Sylvania's three truly modern plants at Seneca Falls, New York, Fullerton, California and Ottawa, Ohio, representing one of the world's largest capacities for the manufacture of television picture tubes.

2. Leading manufacturer of fluorescent television powders.

3. With the exception of the glass bulbs, Sylvania is the only manufacturer in the industry with complete facilities for fabricating all tube components from raw material.

4. Sylvania actually develops and builds most of the special machinery used in the production of their TV picture tubes.

5. Sixteen out of twenty of the nation's largest and leading TV set manufacturers use Sylvania picture tubes in their new models.

Remember, you're getting the very best when your order says

"SILVER SCREEN 85"

by Sylvania.

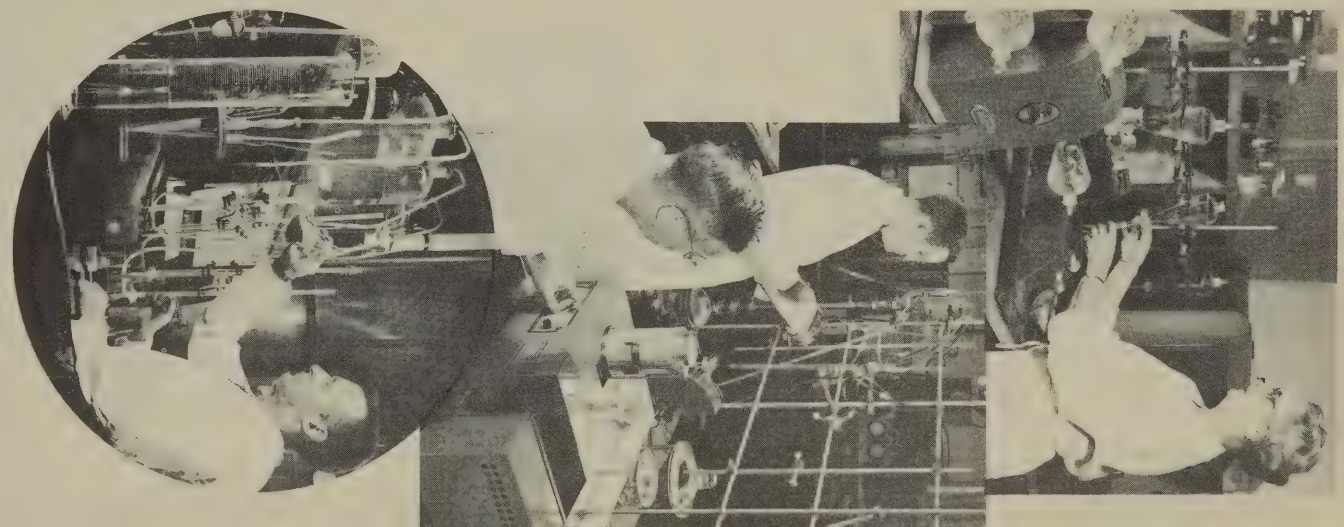
TV PICTURE TUBES MAGNETIC DEFLECTION TYPES

Type No.	Heater▲ Volts	Heater▲ Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1) and Neck Diam.■	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating μμf.	Focusing Method	Design Max. Ratings: Anode Volts	Design Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
5TP4	6.3	0.6	5 Diam.	11¾	Glass	Recessed Small Cavity	Clear A	50	None	Small Shell Duodecal 7 Pin	12C	100 Min., 500 Max.	Electrostatic	29,700	385	27,000	200	40-100
7AP4	2.5	2.1	7⅛ Diam.	13½	Glass	None	Clear	55	None	Medium 5 Pin	5AJ	None	Electrostatic	3850	No Grid	3500	No Grid	67.5
7DP4	6.3	0.6	7⅜ Diam.	14⅛	Glass	Recessed Small Cavity	Clear	50	Double	Small Shell Duodecal 7 Pin	12C	400 Min., 1500 Max.	Electrostatic	8800	450	6000	250	25-65
7HP4	6.3	0.6	7⅜ Diam.	13	Glass	Recessed Small Ball	Clear	50	None	Small Shell Duodecal 5 Pin	12N	500 Max.	Magnetic	8800	450	6000	250	33-77
7RP4	6.3	0.6	7⅜ Diam.	14⅛	Glass	Recessed Small Cavity	Clear A	50	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	13,200	450	9000	250	27-63
8AP4 8AP4A	6.3	0.6	8½ Diam.	14¼	Metal	Cone Lip	Clear Gray	54	Single	Small Shell Duodecal 5 Pin	12H	None	Magnetic	9900	No Grid	7000	No Grid	27-63
8DP4	6.3	0.6	7⅞ x 6⅛	10⅞	Glass	Recessed Small Cavity	Gray	90	Single	Dwarf Shell Duodecal 6 Pin	12AB	250 Min., 350 Max.	Electrostatic	8800	330	8000	200	22-51
													Focusing Voltage = −550 to +550 Volts Max., Operating Voltage = 60 to 360 Volts.					
8JP4	6.3	0.60	8⅛ x 6⅛	8⅛	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JETEC No. B7-183# 7 Pin	8JL	None	Auto Electrostatic	22,000	550	16,000	300	40-77
9AP4	2.5	2.1	9⅛ Diam.	21	Glass	Cap	Clear	40	None	Medium 6 Pin	6AL	None	Electrostatic	7700	275	7000	250	25
9CP4	2.5	2.1	9 Diam.	15⅞	Glass	Cap	Clear	..	None	6 Pin	4AF	None	Magnetic	7700	No Grid	7000	No Grid	90-110
9QP4	4.7	0.3	8⅞ x 6⅛	12¾	Glass	None	Clear	70	Single	Small Shell Duodecal 7 Pin	12AD	None	Electrostatic	7500	330	5500	200	33-77
													Focusing Voltage = −110 to +550 Volts Max., Operating Value = 0 to 400 Volts.					
9QP4A	4.7	0.3	8⅞ x 6⅛	12¾	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 7 Pin	12AD	None	Electrostatic	7500	330	5500	200	33-57
													Focusing Voltage = −110 to +550 Volts Max., Operating Voltage = 0 to 400 Volts. Cathode Drive Operating Values.					
10ABP4 10ABP4A 10ABP4B 10ABP4C	6.3	0.6	9¾ x 7½	11⅞	Glass	Recessed Small Cavity	Clear CA Gray GA	90	Single	Small Shell Duodecal 6 Pin	12L	400 Min., 850 Max.	Electrostatic	13,200	550	7500	300	43-67
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +500 Volts.					
10ADP4	8.4	0.45	9¾ x 7½	11⅞	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 6 Pin	12L	400 Min., 850 Max.	Electrostatic	13,200	550	7500	300	43-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +500 Volts.					
10AEP4	6.3	0.45	9¾ x 7½	11⅞	Glass	Recessed Small Cavity	Clear	90	Single	Small Shell Duodecal 6 Pin	12L	400 Min., 850 Max.	Electrostatic	13,200	550	7500	300	43-67
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +500 Volts.					
10BP4 10BP4A 10BP4C 10BP4D	6.3	0.6	10½ Diam.	17⅝	Glass	Recessed Small Cavity	Clear Gray CA GA	50	Double	Small Shell Duodecal 5 Pin	12N	500 Min., 2500 Max.	Magnetic	11,000	450	9000	250	27-63
10CP4	6.3	0.6	10½ Diam.	16⅝	Glass	Recessed Small Ball	Clear	50	None	Small Shell Duodecal 5 Pin	12N	500 Max.	Magnetic	13,200	450	9000	250	30-66
10DP4	6.3	0.6	10½ Diam.	17⅝	Glass	Recessed Small Cavity	CA	50	None	Small Shell Duodecal 7 Pin	12M	None	Electrostatic	11,000	450	9000	250	36-84
10FP4	6.3	0.6	10½ Diam.	17⅝	Glass	Recessed Small Cavity	CA	50	None	Small Shell Duodecal 5 Pin	12N	500 Min., 2500 Max.	Magnetic	11,000	450	9000	250	27-63
10FP4A	6.3	0.6	10½ Diam.	17⅝	Glass	Recessed Small Cavity	GA	50	None	Small Shell Duodecal 5 Pin	12N	500 Min., 2500 Max.	Magnetic	13,200	450	11,000	250	27-63
10MP4 10MP4A	6.3	0.6	10½ Diam.	17	Glass	Recessed Small Cavity	Clear Gray	50	Double	Small Shell Duodecal 5 Pin	12G	500 Min., 2500 Max.	Magnetic	11,000	No Grid	9000	No Grid	27-63
10RP4	6.3	0.6	10½ Diam.	16½	Glass	Recessed Small Cavity	Clear A	50	None	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 55 to + 300 Volts.					
12AP4	2.5	2.1	12⅛ Diam.	25⅜	Glass	Cap	Clear	40	None	Medium 6 Pin	6AL	None	Electrostatic	7700	275	7000	250	75
													Focusing Voltage = 2200 Volts Max., Operating Range = 1190 to 1790 Volts.					
12CP4	2.5	2.1	12⅛ Diam.	18⅝	Glass	Cap	Clear	..	None	6 Pin Base	4AF	None	Magnetic	7700	No Grid	7000	No Grid	110
12JP4	6.3	0.6	12 Diam.	17½	Glass	Recessed Sm. Ball Cap	Clear	50	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	13,200	450	10,000	250	27-63
12KP4 12KP4A	6.3	0.6	12⅞ Diam.	17⅝	Glass	Recessed Small Cavity	CA GA	54	None	Small Shell Duodecal 5 Pin	12N	500 Min., 2500 Max.	Magnetic	13,200	450	11,000	250	27-63
12LP4 12LP4A 12LP4C	6.3	0.6	12⅞ Diam.	18¾	Glass	Recessed Small Cavity	Clear Gray GA	54	Double	Small Shell Duodecal 5 Pin	12N	750 Min., 3000 Max.	Magnetic	13,200	450	11,000	250	27-63
12QP4 12QP4A	6.3	0.6	12⅞ Diam.	17½	Glass	Recessed Sm. Ball Cap	Clear Gray	54	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	13,200	450	10,000	250	27-63

12RP4	6.3	0.6	12 Diam.	17½	Glass	Recessed Sm. Ball Cap	Clear	50	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	13,200	450 770	10,000	250	27-63
12TP4	6.3	0.6	12⅞ Diam.	18¾	Glass	Recessed Small Cavity	Clear	54	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	13,200	450	11,000	250	27-63
12UP4 12UP4A 12UP4B	6.3	0.6	12⅞ Diam.	18¾	Metal	Cone Lip	Clear Gray Gray	54	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	13,200	450	11,000	250	27-63
12VP4 12VP4A	6.3	0.6	12⅜ Diam.	18	Glass	Recessed Small Cavity	Clear Gray	54	Double	Small Shell Duodecal 5 Pin	12G	750 Min., 3000 Max	Magnetic	13,200	No Grid	11,000	No Grid	33-77
12WP4	6.3	0.6	12⅞ Diam.	17¾	Glass	Special	Gray	55	Single	T6½—9 Pin	9CH	750 Min, 2000 Max	Magnetic	13,200	No Grid	10,000	No Grid	27-63
12YP4	6.3	0.6	12⅞ Diam.	18¾	Glass	Recessed Small Cavity	Gray	54	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 3000 Max.	Auto Electrostatic	13,200	450	11,000	250	33-73
12ZP4 12ZP4A	6.3	0.6	12⅞ Diam.	17⅝	Glass	Recessed Small Cavity	CA GA	54	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 2500 Max.	Magnetic	13,200	450	11,000	250	27-63
14ACP4	6.3	0.6	13⅛ x 10⅝	14⅜	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic Focusing Voltage = −550 to +550 Volts Max., Operating Value = −50 to +350 Volts.	15,400	220	10,000	125	45-85
14AEP4	6.3	0.6	13⅛ x 10⅝	13⅜	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic Focusing Voltage = −550 to 1100 Volts Max., Operating Voltage = −55 to +350 Volts. Cathode Drive Operating Values.	15,400	220*	12,000	110*	37-55
14AJP4	6.3	0.6	13⅜ x 10⅞	11⅞	Glass	Recessed Small Cavity	Gray A	110 (SN)	Single	JEDEC No. B7-183# 7 Pin	8HR	500 Min., 850 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −100 to +400 Volts.	12,100	550	9000	250	29-69
14ARP4	6.3	0.6	13 x 10⅝	13⅜	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic Focusing Voltage = 1100 Volts Max., Operating Voltage = −50 to +350 Volts Max. Cathode Drive Operating Values.	15,400	77*	10,000	50*	50
14ASP4	6.3	0.6	13⅜ x 10⅞	11⅜	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	500 Min., 850 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	15,400	550	12,000	300	33-77
14ATP4	8.4	0.45	13⅛ x 10⅝	13⅜	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	500 Min., 1000 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	15,400	550	14,000	400	36-95
14AUP4	6.3	0.45	13⅛ x 10⅝	13⅜	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 350 Volts. Cathode Drive Operating Values.	16,500	70*	12,000	50*	35-55
14AVP4	6.3	0.6	13⅜ x 10⅞	11⅜	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	450 Min., 700 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	15,400	550	12,000	300	33-77

Note 1: Diagonal Deflection Angles are given for rectangular types.
* Voltage measured from the accelerator grid to the control grid.
▲ All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.
0.04 Diameter Pins integral with tube header and attachable index guide.

■ Unless otherwise noted nominal neck diameter is 1⅞ inches. (SN) Indicates small diameter neck (1⅛ inches nominal diameter).
‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.
* Control grid bias for visual extinction of undeflected focused spot. For Television Picture Tubes, visual extinction of focused raster will generally require about 5 volts less bias.



TV PICTURE TUBES MAGNETIC DEFLECTION TYPES

Type No.	Heater▲ Volts	Heater▲ Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1) and Neck Diam.■	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating $\mu\mu f$.	Focusing Method	Design Max. Ratings: Anode Volts	Design Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
14AWP4	6.3	0.45	13 1/16 x 10 9/16	13 3/16	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic	15,400	75*	14,000	50*	37-52
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage =0 to 400 Volts. Cathode Drive Operating Values					
14AZP4	6.3	0.60	12 17/32 x 9 23/32	16 25/32	Glass	Recessed Small Cavity	Gray A	70	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	22,000	550	18,000	300	35-75
14BP4 14BP4A	6.3	0.6	12 1/2 x 9 11/16	16 15/16	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 2000 Max.	Magnetic	13,200	450	12,000	250	33-77
14CP4 14CP4A	6.3	0.6	12 1/2 x 9 11/16	16 3/4	Glass	Recessed Small Cavity	Gray GA	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 2000 Max.	Magnetic	15,400	450	12,000	300	33-77
14DP4	6.3	0.6	12 1/2 x 9 11/16	16 3/4	Glass	Recessed Small Cavity	Gray	70	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	15,400	450	11,000	250	27-63
14EP4	6.3	0.6	12 17/32 x 9 23/32	16 1/2	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	1250 (Approx.)	Magnetic	15,400	450	12,000	300	33-77
14GP4	6.3	0.6	12 17/32 x 9 3/32	16 13/16	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min, 2000 Max.	Electrostatic	15,400	450	12,000	300	33-77
													Focusing Voltage = 5500 Volts Max., Operating Range = 2170 to 2940 Volts.					
14HP4	6.3	0.6	12 1/2 x 9 11/16	16 13/16	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 2000 Max.	Electrostatic	15,400	450	12,000	300	33-77
													Focusing Voltage = −550 to +550 Volts Max., Operating Range = − 48 to +264 Volts.					
14NP4 14NP4A	6.3	0.6	13 1/16 x 10 9/16	14 3/16	Glass	Recessed Small Cavity	Gray GA	90	Single	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic	15,400	550	12,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Value = −50 to +350 Volts.					
14QP4 14QP4A	6.3	0.6	12 5/16 x 9 3/4	16 5/32	Glass	Recessed Small Cavity	Gray GA	70	Single	Small Shell Duodecal 6 Pin	12L	600 Min., 1000 Max.	Electrostatic	12,100	550	9000	250	29-69
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −50 to +250 Volts.					
14RP4 14RP4A	6.3	0.6	13 1/16 x 10 9/16	14 3/16	Glass	Recessed Small Cavity	Gray GA	90	Single	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic	15,400	440	14,000	300	31-75
													Focusing Voltage = −550 to +550 Volts Max., Operating Value = 70 to 470 Volts.					
14SP4	6.3	0.6	13 1/16 x 10 9/16	14 3/16	Glass	Recessed Small Cavity	GA	90	Single	Small Shell Duodecal 6 Pin	12L	900 Min., 1200 Max.	Electrostatic	15,400	550	12,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Value = −48 to +264 Volts.					
14UP4	6.3	0.6	12 5/16 x 9 3/4	16 25/32	Glass	Recessed Small Cavity	GA	70	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	15,400	550	12,000	300	33-77
14WP4	6.3	0.6	13 1/16 x 10 9/16	13 3/16	Glass	Recessed Small Cavity	GA	90	None	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic	15,400	550	12,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Value = −50 to +350 Volts.					
14XP4 14XP4A	6.3	0.45	13 1/16 x 10 9/16	14 3/16	Glass	Recessed Small Cavity	Gray GA	90	Single	Small Shell Duodecal 6 Pin	12L	1100 Min., 1500 Min.	Electrostatic	16,500	440	12,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −50 to +350 Volts.					
14ZP4	6.3	0.6	13 1/16 x 10 9/16	13 3/16	Glass	Recessed Small Cavity	GA	90	None	Small Shell Duodecal 6 Pin	12L	800 Min., 1200 Max.	Electrostatic	15,400	500	12,000	300	33-77
													Focusing Voltage = −500 to +1000 Volts Max., Operating Range = 0 to +450 Volts.					
15AP4	6.3	0.6	15 1/2 Diam.	20 1/2	Glass	Recessed Small Ball	Clear	52	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	12,000	250	27-63
15CP4	6.3	0.6	15 1/2 Diam.	21 1/2	Glass	Recessed Small Cavity	Clear	52	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	9000	250	45
15DP4 15DP4A	6.3	0.6	15 1/2 Diam.	20 1/2	Glass	Recessed Sm Ball Cap	Clear Gray	57	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	13000	250	27-63
16AP4 16AP4A	6.3	0.6	15 1/8 Diam.	22 1/4 21 15/16	Metal	Cone Lip	Clear Gray	53	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	15,400	450	12,000	300	33-77
16ABP4	6.3	0.6	14 3/4 x 11 1/8	18 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 1500 Max.	Auto Electrostatic	17,600	550	12,000	300	33-77
16ACP4	6.3	0.6	15 7/8 Diam.	20 7/8	Glass	Recessed Small Cavity	Clear	60	Single	Small Shell Duodecal 5 Pin	12P	2000 Max.	Auto Electrostatic	15,400	450	12,000	250	33-68
16AEP4	6.3	0.6	14 3/4 x 11 1/8	18 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic	17,600	450	12,000	300	33-77
													Operating Range = −64 to +350 Volts.					
16CP4	6.3	0.6	15 7/8 Diam.	21 1/2	Glass	Recessed Small Cavity	Clear	52	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	12,000	250	27-63
16DP4 16DP4A	6.3	0.6	15 7/8 Diam.	20 3/4	Glass	Recessed Small Cavity	Clear Gray	60	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	12,000	250	27-63
16EP4 16EP4A 16EP4B	6.3	0.6	15 7/8 Diam.	19 5/16	Metal	Cone Lip	Clear Gray GF	60	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	15,400	450	12,000	300	33-77
16FP4	6.3	0.6	16 1/8 Diam.	20 1/4	Glass	Recessed Sm. Ball Cap	Clear	62	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	17,600	450	13,000	250	27-63
16GP4 16GP4A 16GP4B	6.3	0.6	15 7/8 Diam.	17 5/16	Metal	Cone Lip	Gray Clear GF	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	15,400	450	12,000	300	33-77

16HP4	6.3	0.6	15⅞ Diam.	21¼	Glass	Recessed Small Cavity	Clear	60	Double	Small Shell Duodecal 5 Pin	12N	1500 Min., 3500 Max.	Magnetic	15,400	450	12,000	300	33-77
16HP4A							Gray											
16JP4	6.3	0.6	16⅛ Diam.	20¾	Glass	Recessed Small Cavity	Clear	60	Double	Small Shell Duodecal 5 Pin	12N	750 Min., 2000 Max.	Magnetic	15,400	450	11,000	250	27-63
16JP4A							Gray											
16KP4	6.3	0.6	14¾x11½	18¾	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 1500 Max.	Magnetic	17,600	450	14,000	300	33-77
16KP4A							GA											
16LP4	6.3	0.6	15⅞ Diam.	22¼	Glass	Recessed Small Cavity	Clear	52	Double	Small Shell Duodecal 5 Pin	12N	750 Min., 2000 Max.	Magnetic	15,400	450	12,000	300	33-77
16LP4A							Gray											
16MP4	6.3	0.6	16⅛ Diam.	21¾	Glass	Recessed Small Cavity	Clear	60	Double	Small Shell Duodecal 5 Pin	12N	1500 Min., 3000 Max.	Magnetic	15,400	450	12,000	300	33-77
16MP4A							Gray											
16QP4	6.3	0.6	14¾x11½	19⅛	Glass	Recessed Small Cavity	Gray	70	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	17,600	450	14,000	250	27-63
16RP4	6.3	0.6	14¾x11½	18¾	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 1500 Max.	Magnetic	17,600	450	12,000	300	33-77
16RP4A							GA											
16SP4	6.3	0.6	15⅞ Diam.	17⁵⁄₁₆	Glass	Recessed Small Cavity	Clear	70	Double	Small Shell Duodecal 5 Pin	12N	1500 Min., 3500 Max.	Magnetic	15,400	450	12,000	300	33-77
16SP4A							Gray											
16TP4	6.3	0.6	14¾x11½	18⅛	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 2000 Max.	Magnetic	15,400	450	12,000	300	33-77
16UP4	6.3	0.6	14¾x11½	18⅛	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	12,000	300	27-63
16VP4	6.3	0.6	15⅞ Diam.	17⁵⁄₁₆	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	12,000	250	27-63
16WP4	6.3	0.6	15⅞ Diam.	17¾	Glass	Recessed Small Cavity	Gray	70	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	12,000	250	27-63
16WP4A							Gray				12N	750 Min., 1500 Max.		17,600				
16WP4B							GA				12N	750 Min., 1500 Max.		17,600				
16XP4	6.3	0.6	14¾x11¹⁷⁄₃₂	18¾	Glass	Recessed Small Cavity	Gray	70	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	16,500	450	12,000	250	27-63
16YP4	6.3	0.6	15⅞ Diam.	17⁵⁄₁₆	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 2000 Max.	Magnetic	15,400	450	12,000	300	33-77
16ZP4	6.3	0.6	15⅞ Diam.	22¼	Glass	Recessed Small Cavity	Gray	52	Double	Small Shell Duodecal 5 Pin	12N	750 Min., 1500 Max.	Magnetic	17,600	450	12,000	300	33-77
17AP4	6.3	0.6	15⅜x12¼	18⅝	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 2000 Max.	Magnetic	17,600	450	12,000	300	33-77
17ATP4	6.3	0.6	15⅜x12¼	15⁹⁄₁₆	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	33-77
17ATP4A							GA						Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 55 to + 300 Volts.					
17AVP4	6.3	0.6	15⅜ x 12¼	15⅝	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	33-77
17AVP4A							GA						Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 56 to + 310 Volts.					
17BP4	6.3	0.6	15²⁵⁄₆₄x12²⁹⁄₃₂	19¼	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	17,600	450	12,000	300	33-77
17BP4A							Gray				12N	750 Min., 1500 Max.						
17BP4B							GA				12N	750 Min., 1500 Max.						
17BP4C							GF				12N	750 Min., 1500 Max.						

Note 1: Diagonal Deflection Angles are given for rectangular types.

* Voltage measured from the accelerator grid to the control grid.

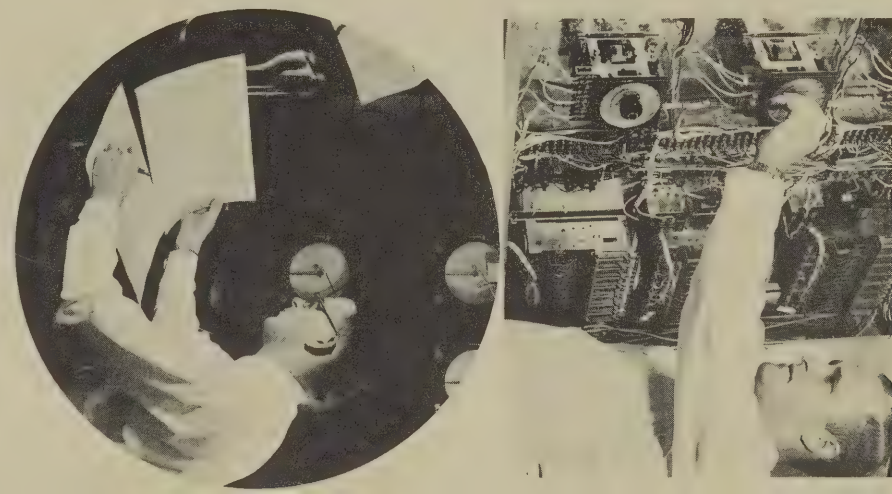
▲ All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.

0.04 Diameter Pins integral with tube header and attachable index guide.

■ Unless otherwise noted nominal neck diameter is 1⅝ inches. (SN) Indicates small diameter neck (1⅛ inches nominal diameter).

‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.

* Control grid bias for visual extinction of undeflected focused spot. For Television Picture Tubes, visual extinction of focused raster will generally require about 5 volts less bias.



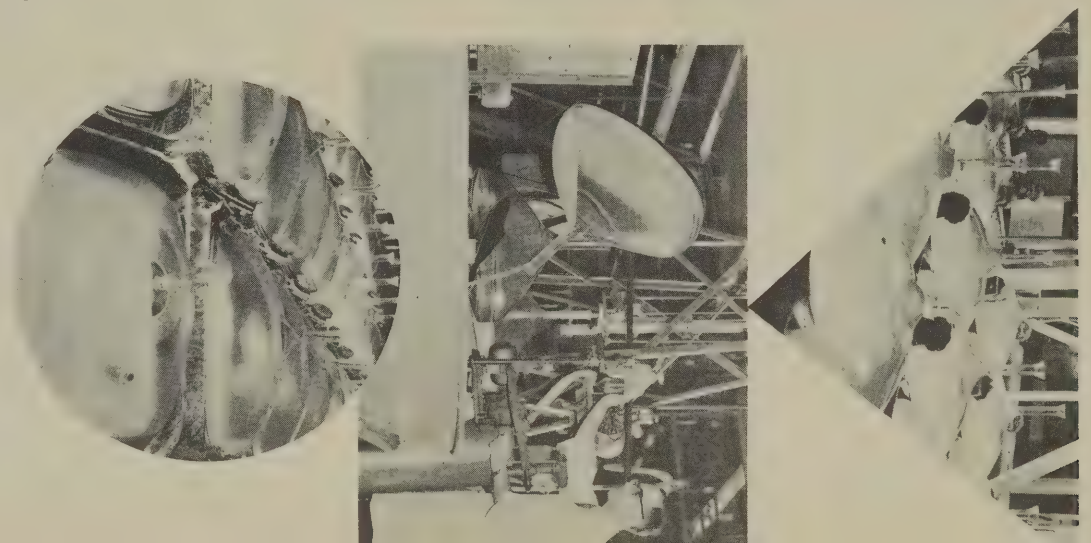
TV PICTURE TUBES MAGNETIC DEFLECTION TYPES

Type No.	Heater▲ Volts	Heater▲ Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1) and Neck Diam.■	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating μμf.	Focusing Method	Design Max. Ratings: Anode Volts	Design Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
17BJP4	6.3	0.6	15⅜ x 12⁹⁄₃₂	14⅝	Glass	Recessed Small Cavity	GA	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −55 to +300 Volts.	17,600	550	14,000	300	33-77
17BKP4 17BKP4A	6.3	0.45	15⅜ x 12⁹⁄₃₂	15⅝	Glass	Recessed Small Cavity	G GA	90	Single	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −56 to +310 Volts.	17,600	550	14,000	300	33-77
17BMP4	6.3	0.6	15⅜ x 12⁹⁄₃₂	15⅝	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −55 to +300 Volts. Cathode Drive Operating Values.	19,800	220*	14,000	110*	37-55
17BNP4	6.3	0.6	15⅜ x 12⁹⁄₃₂	14⅝	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts. Cathode Drive Operating Values.	19,800	220*	14,000	110*	37-55
17BRP4	6.3	0.6	15⅝ x 12¾	12⁹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	Single	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +500 Volts.	16,500	550	14,000	300	33-77
17BSP4	6.3	0.45	15⅜ x 12⁹⁄₃₂	14⅝	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	17,600	550	14,000	300	33-77
17BTP4	6.3	0.30	15⅜ x 12¼	15⅝	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 7 Pin	12AJ	1400 Max., 900 Min.	Electrostatic Focusing Voltage = −550 to +550 Volts Max., Operating Voltage = −75 to + 235 Volts.	19,800	550	16,000	300	40-80
17BUP4	6.3	0.6	15⅜ x 12⁹⁄₃₂	15¼	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −48 to +264 Volts.	19,800	550	12,000	300	33-77
17BVP4	6.3	0.6	15⅝ x 12¾	13¼	Glass	Recessed Small Cavity	Gray A	110 (SN)	Single	JEDEC No. B6-185 6 Pin (attachable base with conventional pins)	7FA	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	17,600	550	14,000	300	40-77
17BWP4	6.3	0.6	15⅝ x 12¾	12⁹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B6-185 6 Pin (attachable base with conventional pins)	7FA	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	17,600	550	14,000	300	40-77
17BYP4	6.3	0.45	15⅝ x 12¾	12⁹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B6-185 6 Pin (attachable base with conventional pins)	7FA	1000 Min., 1500 Min.,	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	17,600	550	14,000	300	40-77
17BZP4	6.3	0.6	15⅝ x 12¾	12⁹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +400 Volts.	17,600	550	14,000	300	33-77
17CP4 17CP4A	6.3	0.6	15¹⁵⁄₁₆x12¼	18⅝	Metal	Cone Lip	GF Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	17,600	450	14,000	300	33-77
17CAP4	6.3	0.6	15⅝ x 12¾	12⁹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	17,600	550	14,000	300	40-77
17CBP4	6.3	0.6	15⅜ x 12⁹⁄₃₂	15¼	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	19,800	550	12,000	300	33-77
17CDP4	8.4	0.45	15⅝ x 12¾	12⁹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	800 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	17,600	550	14,000	300	33-77
17CEP4	6.3	0.45	15⅝ x 12¾	15	Light Weight Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	17,600	550	14,000	300	33-77
17CFP4	6.3	0.6	15⅝ x 12¾	15	Light Weight Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	17,600	550	14,000	300	33-77
17CGP4	6.3	0.6	15⅜ x 12¼	17⅜16	Glass	Recessed Small Cavity	Gray A	70	None	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −56 to +310 Volts.	15,400	550	11,000	300	33-77
17CKP4	6.3	0.60	15⅝ x 12¾	12⁹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 500 Volts.	16,500	550	14,000	300	33-77
17CLP4	6.3	0.60	15⅜ x 12⁹⁄₃₂	15⅝	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	1800 Min., 2300 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −48 to +264 Volts.	17,600	550	14,000	300	40-77
17CMP4	6.3	0.60	15⅜ x 12¼	14⅝	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts. Cathode Drive Operating Values.	17,600	70*	14,000	50*	40-55

17CNP4	6.3	0.60	15⅜ x 12¾	15	Light Weight Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic	17,600	70*	14,000	50*	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts. Cathode Drive Operating Values.	40-55
17CRP4	6.3	0.45	15⅜ x 12²⁹⁄₃₂	14⅝	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1800 Min., 2300 Max.	Electrostatic	17,600	70*	14,000	50*	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 350 Volts. Cathode Drive Operating Values.	35-55
17CSP4	6.3	0.60	15⅝ x 12¾	12⅝	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	7FA	900 Min., 1400 Max.	Electrostatic	17,600	550	14,000	300	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	40-77
17CTP4	6.3	0.45	15⅝ x 12¾	12⅝	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	40-77
17CUP4	6.3	0.30	15⅝ x 12¾	15	Light Weight Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	40-77
17CVP4	6.3	0.3	15⅝ x 12¾	12⅝	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	40-77
17CWP4	6.3	0.60	15⅝ x 12¾	11⅝	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic	17,600	550	14,000	400	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	41-97
17CXP4	6.3	0.45	15⅜ x 12¼	14⅝	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic	17,600	75*	14,000	50*	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts. Cathode Drive Operating Values.	37-52
17CYP4	6.3	0.60	15⅝ x 12¾	14	Light Weight Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min. 1500 Max.	Electrostatic	17,600	550	14,000	450	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	44-110
17CZP4	6.3	0.60	15⅜ x 12¼	13⅝	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic	17,600	550	14,000	450	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	44-110
17DAP4/ SF17	2.68	0.45	15⅝ x 12¾	10¹¹⁄₁₆	Light* Weight Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JK	900 Min., 1400 Max.	Electrostatic	17,600	550	14,000	300	Focusing Voltage = −700 to +950 Volts Max., Operating Voltage = 100 to 500 Volts.	40-77
17DBP4	6.3	0.30	15²⁵⁄₆₄ x 12²⁹⁄₃₂	19⅜	Glass	Recessed Small Cavity	Gray A	70	Single	Small Shell Duodecal 6 Pin	12L	1500 Max., 750 Min.	Electrostatic	17,600	550	14,000	300	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +300 Volts.	40-77
17DCP4	6.3	0.30	15⅜ x 12²⁹⁄₃₂	14⅝	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +300 Volts.	40-77
17DEP4	2.35	0.60	15⅝ x 12¾	10⅞	Light Weight Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JN	900 Min., 1400 Max	Electrostatic	17,600	700	14,000	500	Focusing Voltage = 700 Volts Max., Operating Voltage = 0 to 400 Volts.	48-77

Note 1: Diagonal Deflection Angles are given for rectangular types.
* Voltage measured from the accelerator grid to the control grid.
▲ All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.
0.04 Diameter Pins integral with tube header and attachable index guide.

■ Unless otherwise noted nominal neck diameter is 1⅞ inches.
(SN) Indicates small diameter neck (1⅛ inches nominal diameter).
‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.
* Control grid bias for visual extinction of undeflected focused spot. For Television Picture Tubes, visual extinction of focused raster will generally require about 5 volts less bias.



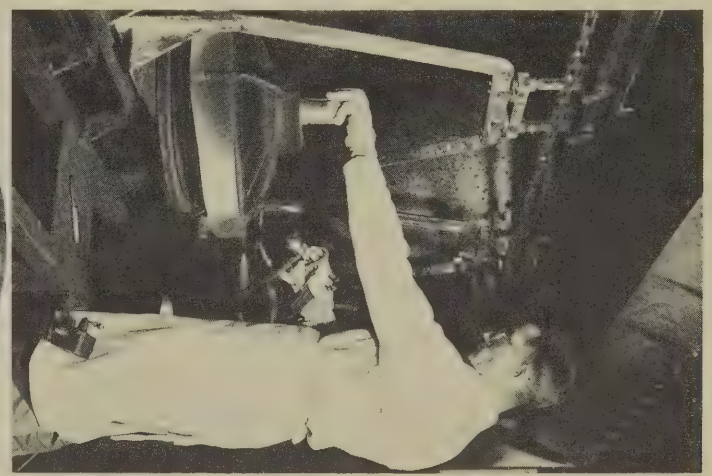
TV PICTURE TUBES MAGNETIC DEFLECTION TYPES

Type No.	Heater▲ Volts	Heater▲ Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1) and Neck Diam.■	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating μμf.	Focusing Method	Design Max. Ratings: Anode Volts	Design Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
17DHP4	6.3	0.45	15⅝ x 12¾	11¼	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	17,600	770	14,000	500	48-77
17DJP4	6.3	0.30	15⅜ x 12⁹⁄₃₂	15⅝	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +300 Volts.	17,600	550	14,000	300	40-77
17DKP4	6.3	0.60	15⅝ x 12¾	10¹¹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = 700 Volts Max., Operating Voltage = 500 Volts.	17,600	600	14,000	500	48-83
17DLP4	6.3	0.60	15⅝ x 12¾	11 1⁄16	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B6-212# 6 Pin	8JS	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	19,800	770	17,000	450	33-77
17DSP4	6.3	0.60	15⅝ x 12¾	11¼	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to −400 Volts.	17,600	550	14,000	400	50-95
17DTP4	6.3	0.60	15⅝ x 12¾	10¹¹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8HR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	17,600	550	14,000	300	33-77
17DXP4	6.3	0.45	15⅝ x 12¾	10¹¹⁄₁₆	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JR	1000 Min., 1500 Max.	Electrostatic Focusing Voltage = 700 Volts Max., Operating Voltage = 0 to 400 Volts.	17,600	700	14,000	500	48-83
17FP4	6.3	0.6	15⅜ x 12¼	19¼	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 1500 Max.	Electrostatic Focusing Voltage = 5500 Volts Max., Operating Range = 3100 to 4100 Volts.	19,800	450	16,000	300	33-77
17FP4A											12L	750 Min., 2000 Max.						
17GP4	6.3	0.6	15¹⁵⁄₁₆x12¼	18¹⁵⁄₁₆	Metal	Cone Lip	GF	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = 5500 Volts Max., Operating Range = 2290 to 3620 Volts.	17,600	550	14,000	300	33-77
17HP4	6.3	0.6	15²⁵⁄₆₄x12⁹⁄₃₂	19⅜	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −56 + 310 Volts.	17,600	550	14,000	300	33-77
17HP4A							GF											
17HP4B							GA											
17JP4	6.3	0.6	15²⁵⁄₆₄x12⁹⁄₃₂	19¼	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 1500 Max.	Magnetic	19,800	450	14,000	300	33-77
17KP4	6.3	0.6	15⅜ x 12¼	19¼	Glass	Recessed Small Cavity	Gray GA	70	Single	Small Shell Duodecal 5 Pin	12P	1000 Min., 1500 Max.	Auto Electrostatic	17,600	550	12,000	300	33-77
17KP4A																		
17LP4/ 17VP4	6.3	0.6	15⅜x12¼	19⅜	Glass	Recessed Small Cavity	Gray Cyl.	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −56 to +310 Volts.	17,600	550	14,000	300	33-77
17LP4A							GA Cyl.											
17QP4	6.3	0.6	15⅜x12¼	19⅜	Glass	Recessed Small Cavity	Gray Cyl.	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 1500 Max.	Magnetic	17,600	450	14,000	300	33-77
17QP4A							GA Cyl.							19,800				
17RP4	6.3	0.6	15⅜ x 12¼	19¼	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Value = −50 to +350 Volts.	17,600	550	14,000	300	33-77
17RP4C							GA											
17SP4	6.3	0.6	15⅜ x 12¼	19⅜	Glass	Recessed Small Cavity	Gray Cyl.	70	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 750 Max.	Auto Electrostatic	15,400	450	12,000	250	33-66
17TP4	6.3	0.6	15¹⁵⁄₁₆x12¼	18⅞	Metal	Cone Lip	GF	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −65 to +350 Volts.	17,600	550	16,000	300	33-77
17UP4	6.3	0.6	15⅜x12¼	19⅜	Glass	Recessed Small Cavity	Gray Cyl.	70	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 1500 Max.	Magnetic	15,400	450	12,000	250	33-66
17VP4	6.3	0.6	15⅜ x 12⁹⁄₃₂	19⅜	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Value = −48 to +260 Volts.	17,600	550	14,000	300	33-77
17VP4B							GA											
17YP4	6.3	0.6	15²⁵⁄₆₄x12⁹⁄₃₂	19⅜	Glass	Recessed Small Cavity	Gray Cyl.	70	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 1500 Max.	Magnetic	19,800	550	16,000	300	33-77
19AP4	6.3	0.6	18⅝ Diam.	21½	Metal	Cone Lip	Clear Gray	66	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	17,600	450	13,000	250	27-63
19AP4A							GF											
19AP4B							GA											
19AP4C							CF											
19AP4D																		
19DP4	6.3	0.6	18⅞ Diam.	21½	Glass	Recessed Small Cavity	Clear Gray	66	Single	Small Shell Duodecal 5 Pin	12N	750 Min., 2500 Max.	Magnetic	18,700	450	13,000	250	26-63
19DP4A																		
19EP4	6.3	0.6	17x13³⁄₃₂	21⅛	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	20,900	450	13,000	250	26-63
19EP4	6.3	0.6	18⅞ Diam.	22	Glass	Recessed	Gray	66	Double	Small Shell Duodecal 5 Pin	12D	None	Magnetic	20,900	450	13,000	250	27-63

					Small Cavity												
19JP4	6.3	0.6	17 1/16 x 13 3/16	20 13/16	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	450	12,000	300	33-77
19QP4	6.3	0.6	17 1/16x13 3/16	21 1/8	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic	19,800	450	12,000	300	33-77
													Focusing Voltage = 550 Volts Max. Operating Range = −50 to +350 Volts.					
20BP4	6.3	0.6	20 Diam.	28 3/4	Glass	Medium Cap.	Clear	54	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	18,500	825	15,000	250	25-70
20CP4	6.3	0.6	18 11/16x14 15/16	21 7/16	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	450	16,000	300	33-77
20CP4A							Gray				12N	500 Min., 1500 Max.						
20CP4B							GA				12D	None						
20CP4C							GF				12D	None						
20CP4D							GA				12N	500 Min., 1500 Max.						
20DP4	6.3	0.6	18 11/16x14 15/16	21 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	450	16,000	300	33-77
20DP4A							Gray				12N	500 Min., 1500 Max.						
20DP4B							GA				12D	None						
20DP4C							GA				12N	500 Min., 1500 Max.						
20FP4	6.3	0.6	18 11/16 x 14 15/16	21 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic	19,800	450	16,000	300	33-77
													Focusing Voltage = 5500 Volts Max., Operating Range = 3150 to 4250 Volts.					
20GP4	6.3	0.6	18 11/16 x 14 15/16	21 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	500 Min. 750 Max.	Electrostatic	19,800	450	16,000	300	33-77
													Focusing Voltage = 5500 Volts Max., Operating Range = 3150 to 4270 Volts.					
20HP4	6.3	0.6	18 11/16x14 15/16	21 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic	17,600	550	14,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −56 to +310 Volts.					
20HP4A							Gray				12L	500 Min., 1500 Max.						
20HP4B							GF				12M	None						
20HP4C							GA				12M	None						
20HP4D							GA				12L	500 Min., 1500 Max.						
20JP4	6.3	0.6	18 11/16x14 15/16	21 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12P	500 Min., 750 Max.	Auto Electrostatic	19,800	550	12,000	300	33-77
20LP4	6.3	0.6	18 11/16x14 15/16	21 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	33-77
													Focusing Voltage = −1100 to +2200 Volts Max., Operating Value = 0 Volts.					
20MP4	6.3	0.6	18 11/16x14 15/16	21 3/4	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 1500 Max.	Electrostatic	17,600	550	14,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −55 to +300 Volts.					
21AP4	6.3	0.6	19 23/32x15 5/16	22 1/4	Metal	Cone Lip	GF	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	550	16,000	300	33-77
21ACP4	6.3	0.6	20 1/4 x 16 3/8	20	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	22,000	550	16,000	300	33-77
21ACP4A							GA											
21AFP4	6.3	0.6	20 1/4x15 9/16	23	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic	19,800	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −64 to +350 Volts.					
21ALP4	6.3	0.6	20 1/4 x 16 3/8	20	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic	19,800	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −64 to +350 Volts.					
21ALP4A							GA											

Note 1: Diagonal Deflection Angles are given for rectangular types.
* Voltage measured from the accelerator grid to the control grid.
▲ All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.
0.04 Diameter Pins integral with tube header and attachable index guide.

■ Unless otherwise noted nominal neck diameter is 1 7/8 inches. (SN) Indicates small diameter neck (1 1/8 inches nominal diameter).
‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.
* Control grid bias for visual extinction of undeflected focused spot. For Television Picture Tubes, visual extinction of focused raster will generally require about 5 volts less bias.



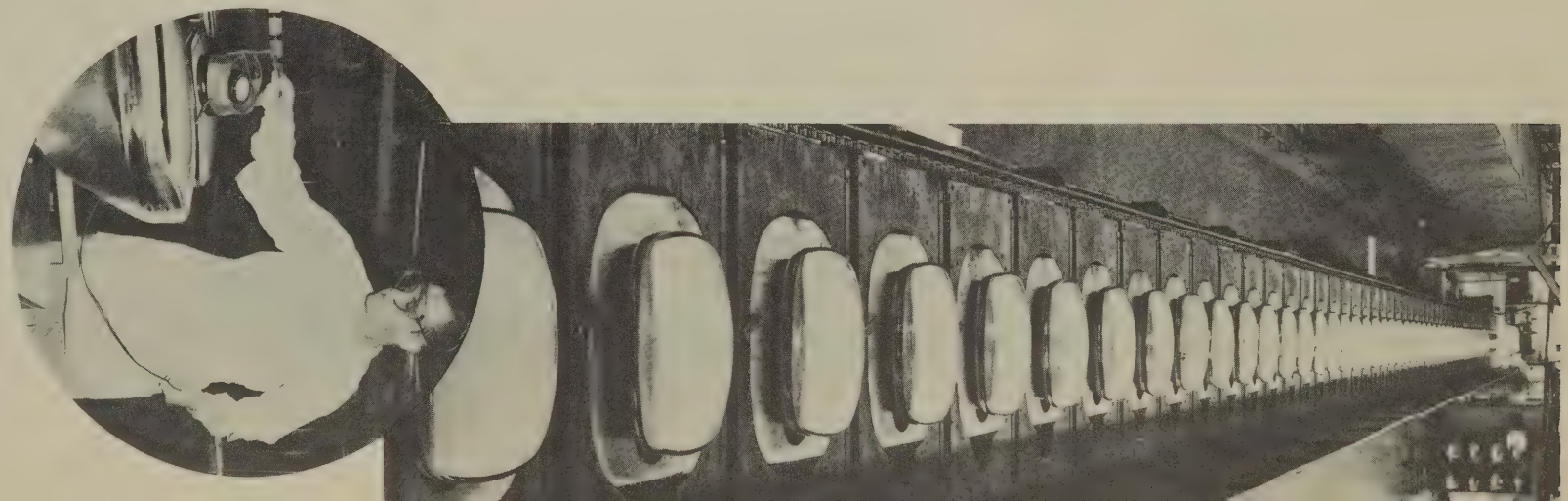
TV PICTURE TUBES MAGNETIC DEFLECTION TYPES

Type No.	Heater▲ Volts	Heater▲ Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1) and Neck Diam.■	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating μμf.	Focusing Method	Design Max. Ratings: Anode Volts	Design Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
21ALP4B	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	GA	90	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = —550 to +1100 Volts Max., Operating Range = —64 to +350 Volts.					
21AMP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	19,800	550	16,000	300	33-77
21AMP4A							GA											
21AMP23A	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	GA	90	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 750 Max.	Magnetic	19,800	550	16,000	300	33-77
21ANP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic	19,800	550	16,000	300	33-77
21ANP4A							GA						Focusing Voltage = —550 to +1100 Volts Max., Operating Range = —64 to +350 Volts.					
21AQP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	550	16,000	300	33-77
21AQP4A							GA											
21ARP4	6.3	0.6	20¼ x 15⅝	23½	Glass	Recessed Small Cavity	Gray	70	Internal	Small Shell Duodecal 5 Pin	12N	500 Min., 750 Max.	Internal Magnetic	22,000	550	16,000	300	33-77
21ARP4A							GA											
21ASP4	6.3	0.6	18¹¹⁄₁₆x14¹⁵⁄₁₆	22⅞	Glass	Recessed Small Cavity	Gray	70	Single	Small-Shell Duodecal 6 Pin	12M	None	Electrostatic	19,800	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 352 Volts.					
21ATP4	6.3	0.6	20¼x16⅜	20	Glass	Recessed Small Cavity	GA	90	Single	Small Shell Duodecal 6 Pin	12L	1200Min., 1500Max.	Electrostatic	19,800	550	16,000	300	33-77
21ATP4B							Gray						Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 350 Volts.					
21ATP4A	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +350 Volts.					
21AUP4	6.3	0.6	20¼x16⅜	23½	Glass	Recessed Small Cavity	Gray	72	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	19,800	550	16,000	300	33-77
21AUP4A							GA						Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 352 Volts.					
21AUP4B	6.3	0.6	20¼x16⅜	23½	Glass	Recessed Small Cavity	Gray A	72	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 352 Volts.					
21AVP4	6.3	0.6	20¼x16⅜	23½	Glass	Recessed Small Cavity	Gray	72	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	19,800	550	16,000	300	33-77
21AVP4A							GA						Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 352 Volts.					
21AVP4B	6.3	0.6	20¼x16⅜	23½	Glass	Recessed Small Cavity	Gray A	72	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 352 Volts.					
21AWP4	6.3	0.6	20¼x16⅜	23½	Glass	Recessed Small Cavity	Gray A	72	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	19,800	550	16,000	300	33-77
21AYP4	6.3	0.6	18¹¹⁄₁₆x14¹⁵⁄₁₆	22⅞	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	750 Min., 2500 Max.	Electrostatic	19,800	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 352 Volts.					
21BAP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to 500 Volts.					
21BCP4	6.3	0.6	20¼ x 16⅝	23½	Glass	Recessed Small Cavity	Gray A	70	None	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = +50 to +550 Volts.					
21BDP4	6.3	0.6	20¼ x 16⅜	23½	Glass	Recessed Small Cavity	Gray A	72	None	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = +50 to +550 Volts.					
21BNP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to +500 Volts.					
21BSP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	22,000	550	16,000	300	33-77
21BTP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +350 Volts.					
21CBP4	6.3	0.6	20¼ x 16⅜	18	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	18,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −70 to +396 Volts.					
21CBP4A	6.3	0.6	20¼ x 16⅜	18	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −500 to +1000 Volts Max., Operating Voltage = 0 to +450 Volts.					

21CDP4 21CDP4A	6.3	0.45	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray GA	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 550 | 16,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +352 Volts.	33-77
21CEP4 21CEP4A	6.3	0.6	20¼ x 16⅜	14⅞	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic | 19,800 | 550 | 16,000 | 400 | 22,000 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +400 Volts.	41-99
21CGP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 220* | 18,000 | 110* Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −72 to +396 Volts. Cathode Drive Operating Values.	37-55
21CHP4	6.3	0.6	20¼ x 16⅜	18	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 220* | 18,000 | 110* Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts. Cathode Drive Operating Values.	37-55
21CKP4	6.3	0.45	20¼ x 16⅜	18	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 550 | 16,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	33-77
21CLP4	6.3	0.30	20¼ x 16⅜	19	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 7 Pin	12AJ	1250 Min., 1750 Max.	Electrostatic | 19,800 | 550 | 16,000 | 300 Focusing Voltage = −550 to +550 Volts Max., Operating Voltage = −75 to +235 Volts.	40-80
21CMP4	6.3	0.60	20¼ x 16⅜	19	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 550 | 16,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +352 Volts.	33-77
21CQP4	6.3	0.60	20¼ x 16⅜	14⅞	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B6-185 6 Pin (attachable base with conventional pins)	7FA	2000 Min., 2500 Max.	Electrostatic | 19,800 | 550 | 16,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	40-77
21CSP4	6.3	0.45	20¼ x 16⅜	14⅞	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B6-185 6 Pin (attachable base with conventional pins)	7FA	2000 Min., 2500 Max.	Electrostatic | 19,800 | 550 | 16,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	40-77
21CUP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic | 22,000 | 550 | 16,000 | 300	33-77
21CVP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 550 | 16,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +352 Volts.	33-77
21CWP4	6.3	0.6	20¼ x 16⅜	20	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 550 | 16,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +352 Volts.	33-77
21CXP4	6.3	0.6	20¼ x 16⅜	18	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic | 22,000 | 70* | 18,000 | 50* Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 350 Volts.	35-50
21CZP4	6.3	0.6	20¼ x 16⅜	14⅞	Glass	Recessed Small Cavity	Gray A	110 (SN)	Single	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic | 19,800 | 550 | 17,000 | 300 Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to +500 Volts.	33-77

Note 1: Diagonal Deflection Angles are given for rectangular types,
* Voltage measured from the accelerator grid to the control grid.
▲ All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.
0.04 Diameter Pins integral with tube header and attachable index guide.

■ Unless otherwise noted nominal neck diameter is 1⅞ inches.
(SN) Indicates small diameter neck (1⅛ inches nominal diameter).
‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.
* Control grid bias for visual extinction of undeflected focused spot. For Television Picture Tubes, visual extinction of focused raster will generally require about 5 volts less bias.



TV PICTURE TUBES MAGNETIC DEFLECTION TYPES

Type No.	Heater▲ Volts	Heater▲ Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1) and Neck Diam.■	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating μμf.	Focusing Method	Design Max. Ratings: Anode Volts	Design Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
21DP4	6.3	0.6	19 23/32 x 15 5/16	22 1/4	Metal	Cone Lip	Gray F	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = 5500 Volts Max. Operating Range = 3150 to 4270 Volts.	19,800	550	16,000	300	33-77
21DAP4	6.3	0.60	20 1/4 x 16 3/8	14 11/16	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −0 to +400 Volts.	19,800	550	16,000	400	41-99
21DEP4 21DEP4A	6.3	0.60	20 1/4 x 16 3/8	14 11/16	Light Weight Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 500 Volts.	19,800 22,000	550	17,000	300	33-77
21DFP4	6.3	0.60	20 1/4 x 16 3/8	14 7/16	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1500 Min., 2200 Max.	Electrostatic Focusing Voltage = −550 to+1100 Volts Max., Operating Voltage = 0 to 400 Volts.	19,800	550	16,000	400	41-99
21DHP4	6.3	0.45	20 1/4 x 16 3/8	14 11/16	Light Weight Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1700 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	19,800	550	16,000	300	40-77
21DJP4	6.3	0.30	20 1/4 x 16 3/8	18	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	22,000	550	16,000	300	40-77
21DKP4	6.3	0.3	20 1/4 x 16 3/8	14 11/16	Light Weight Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1700 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	19,800	550	16,000	300	40-77
21DLP4	6.3	0.6	20 1/4 x 16 3/8	17	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	22,000	550	16,000	300	33-77
21DMP4	6.3	0.60	20 1/4 x 16 3/8	13 3/4	Light Weight Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	22,000	550	16,000	400	41-97
21DNP4	6.3	0.6	20 1/4 x 16 3/8	19	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	1200 Min., 1500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +352 Volts.	22,000	550	16,000	300	40-77
21DQP4	6.3	0.6	20 1/4 x 16 3/8	17 1/2	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	20,000	550	16,000	300	40-77
21DRP4	6.3	0.6	20 1/4 x 16 3/8	18 1/4	Light Weight Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 450 Volts.	22,000	550	16,000	300	33-77
21DSP4	6.3	0.6	20 1/4 x 16 3/8	18	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts. Cathode Drive Operating Values.	22,000	70*	16,000	50*	37-52
21DVP4	6.3	0.30	20 1/4 x 16 3/8	20	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	22,000	550	18,000	300	33-77
21DWP4	6.3	0.60	20 1/4 x 16 3/8	14 7/16	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.	19,800	550	14,000	450	50-110
21EP4 21EP4A 21EP4B	6.3	0.6	20 1/4 x 15 5/16	23	Glass	Recessed Small Cavity	Gray Cyl. GA Cyl.	70	Single	Small Shell Duodecal 5 Pin	12D 12N 12N	None 500 Min., 750 Max. 500 Min., 750 Max.	Magnetic	19,800	550	16,000	300	33-77
21EAP4/ SF21A	2.34	0.60	20 1/4 x 16 3/8	12 15/16	Light⊕ Weight Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JK	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −700 to +950 Volts Max., Operating Voltage = 100 to 500 Volts.	20,000	550	16,000	300	40-77
21ELP4	6.3	0.30	20 1/4 x 16 3/8	19	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin or Short Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	22,000	550	16,000	450	50-110
21EMP4	6.3	0.60	20 1/4 x 16 3/8	13 3/8	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.	19,800	550	16,000	450	50-110
21ENP4	6.3	0.30	20 1/4 x 16 3/8	19	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −64 to +352 Volts.	22,000	550	16,000	300	40-77

21EQP4	6.3	0.60	20¼ x 16⅜	12⅞	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JR	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = 700 Volts Max., Operating Voltage = 0 to 400 Volts.	20,000	600	16,000	500	48-77
21ERP4	6.3	0.60	20¼ x 16⅜	12⅞	Glass Bonded Shield	Recessed Small Cavity	GF A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JR	1500 Min., 2000 Max.	Electrostatic Focusing Voltage = 700 Volts Max., Operating Voltage = 0 to 400 Volts.	20,000	600	16,000	500	48-77
21ESP4	6.3	0.60	20¼ x 16⅜	13⅜	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B6-212# 6 Pin	8JS	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 500 Volts.	19,800	825	17,000	450	33-77
21EWP4	6.3	0.60	20¼ x 16⅜	23½	Glass	Recessed Small Cavity	Gray A	72	None	Small Shell Duodecal 5 Pin	12D	None	Magnetic	22,000	1100	18,000	300	33-75
21EXP4	6.3	0.30	20¼ x 16⅜	12⅞	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JR	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = 700 Volts Max., Operating Voltage = 0 to 400 Volts.	20,000	600	16,000	500	48-83
21FP4	6.3	0.6	20¼x15⅝	23	Glass	Recessed Small Cavity	Gray Cyl.	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 64 to + 350 Volts.	19,800	550	16,000	300	33-77
21FP4A							Gray Cyl.				12L	500 Min., 750 Max.						
21FP4C							GA Cyl.				12L	500 Min., 750 Max.						
21JP4	6.3	0.6	20¼x15⅝	23½	Glass	Recessed Small Cavity	Gray Cyl.	70	Internal	Small Shell Duodecal 5 Pin	12N	500 Min., 750 Max.	Internal Magnetic	22,000	550	16,000	300	33-77
21JP4A							GA Cyl.											
21KP4	6.3	0.6	20¼x15⅝	23	Glass	Recessed Small Cavity	Gray Cyl.	70	Single	Small Shell Duodecal 5 Pin	12D	None	Auto Electrostatic	19,800	550	14,000	300	33-77
21KP4A											12P	500 Min., 750 Max.						
21MP4	6.3	0.6	19²³⁄₃₂x15⅝	22¼	Metal	Cone Lip	Gray F	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −65 to +350 Volts.	17,600	550	16,000	300	33-77
21WP4	6.3	0.6	18¹¹⁄₁₆x14¹⁵⁄₁₆	22⅞	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 750 Max.	Magnetic	19,800	550	16,000	300	33-77
21WP4A							GA											
21XP4	6.3	0.6	18¹¹⁄₁₆x14¹⁵⁄₁₆	22⅞	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −64 to +352 Volts.	19,800	550	16,000	300	33-77
21XP4A							GA											
21YP4	6.3	0.6	20¼x15⅝	23	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −64 to +352 Volts.	19,800	550	16,000	300	33-77
21YP4A							GA											
21ZP4	6.3	0.6	20¼x15⅝	23	Glass	Recessed Small Cavity	Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	550	16,000	300	33-77
21ZP4A							Gray				12N	500 Min., 750 Max.						
21ZP4B							GA				12N	500 Min., 750 Max.						
22AP4	6.3	0.6	21¹¹⁄₁₆ Diam.	22⅞	Metal	Cone Lip	Clear Gray	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	20,900	450	14,000	300	33-77
22AP4A																		

Note 1: Diagonal Deflection Angles are given for rectangular types.

* Voltage measured from the accelerator grid to the control grid.

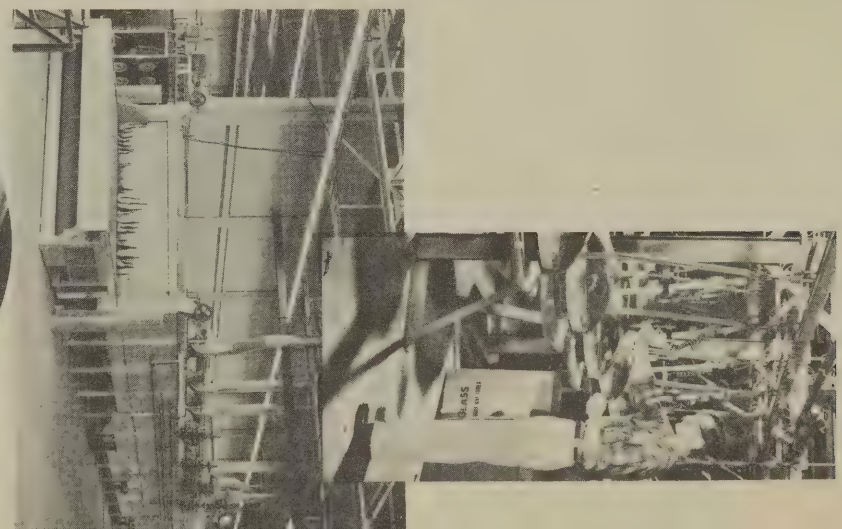
▲ All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.

0.04 Diameter Pins integral with tube header and attachable index guide.

■ Unless otherwise noted nominal neck diameter is 1⅞ inches. (SN) Indicates small diameter neck (1⅛ inches nominal diameter).

‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.

* Control grid bias for visual extinction of undeflected focused spot. For Television Picture Tubes, visual extinction of focused raster will generally require about 5 volts less bias.



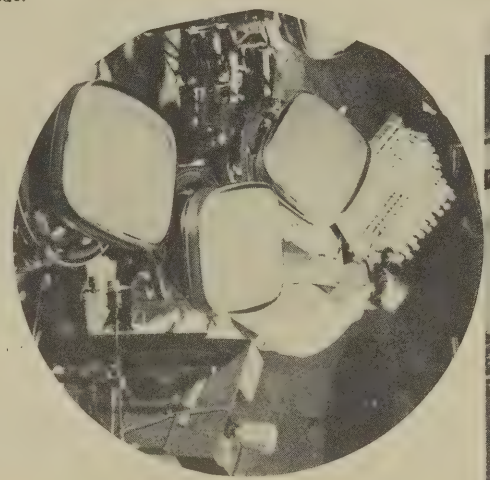
MAGNETIC DEFLECTION TYPES

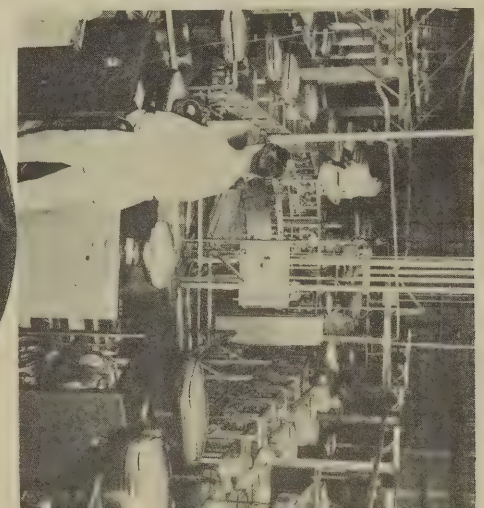
Type No.	Heater▲ Volts	Heater▲ Amperes	Bulb: Nominal Face Dimensions Inches	Bulb: Nominal Length Inches	Bulb: Construction	Bulb: Anode Terminal	Bulb: Face Plate ‡	Bulb: Defl. Angle (Note 1) and Neck Diam.■	Ion Trap Required	Base	Basing	Filter Capacitance Provided by Bulb Coating μμf.	Focusing Method	Absolute Max. Ratings: Anode Volts	Absolute Max. Ratings: Accelerator Grid Volts	Typical Operation: Anode Volts	Typical Operation: Accelerator Grid Volts	Typical Operation: Cutoff Voltage*
23CP4	6.3	0.60	21 5/16 x 17 5/16	15 1/8	Glass Bonded Shield	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic	20,000	550	16,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.					
23DP4	6.3	0.60	21 5/16 x 17 5/16	13 9/16	Glass Bonded Shield	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8JR	2000 Min., 2500 Max.	Electrostatic	20,000	600	16,000	500	48-83
													Focusing Voltage = 700 Volts Max., Operating Voltage = 0 to 400 Volts.					
23GP4	6.3	0.60	21 5/16 x 17 5/16	15 5/16	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-208# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic	20,000	550	16,000	300	33-77
													Focusing Voltage = −500 to +2000 Volts Max., Operating Voltage = 0 to 400 Volts.					
24AP4 24AP4A 24AP4B	6.3	0.6	24 Diam.	23 15/16	Metal	Cone Lip	Gray GA CF	70	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	17,600	450	15,000	300	33-77
24ADP4	6.3	0.6	22 11/16 x 18 7/16	21 1/8	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	24,200	660	18,000	300	33-77
24AEP4	6.3	0.6	22 11/16 x 18 7/16	19 1/8	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	18,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.					
24AHP4	6.3	0.6	22 11/16 x 18 1/2	15 7/8	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −50 to +350 Volts.					
24AJP4	6.3	0.60	22 11/16 x 18 7/16	19 1/8	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1700 Min., 2500 Max.	Electrostatic	22,000	70*	18,000	50*	35-50
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 350 Volts.					
24ALP4	6.3	0.60	22 11/16 x 18 1/2	15 7/8	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic	22,000	550	17,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 500 Volts.					
24AMP4	6.3	0.60	22 11/16 x 18 1/2	15 5/8	Glass	Recessed Small Cavity	Gray A	110 (SN)	Single	JEDEC No. B6-185 6 Pin (attachable base with conventional pins)	7FA	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max. Operating Voltage = 0 to 400 Volts.					
24ANP4	6.3	0.60	22 43/64 x 18 7/16	20 1/8	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	1700 Min., 2500 Max.	Electrostatic	22,000	550	18,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −72 to +396 Volts.					
24AQP4	6.3	0.45	22 11/16 x 18 1/2	15 7/8	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1700 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.					
24ASP4	6.3	0.30	22 43/64 x 18 7/16	19 1/8	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1700 Min., 2500 Max.	Electrostatic	22,000	550	18,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.					
24ATP4	6.3	0.6	22 11/16 x 18 7/16	19 1/8	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	75*	18,000	50*	39-54
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.					
24AUP4	6.3	0.60	22 43/64 x 18 7/16	18 1/2	Glass	Recessed Small Cavity Cap	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	1700 Min., 2500 Max.	Electrostatic	22,000	550	18,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −75 to +400 Volts.					
24AVP4	2.35	0.60	22 11/16 x 18 1/2	14 13/16	Glass	Recessed Small Cavity Cap	Gray A	110	None	JEDEC No. B7-208# 7 Pin	8JK	1700 Min., 2500 Max.	Electrostatic	20,000	550	16,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −100 to +300 Volts.					
24AWP4	6.3	0.60	22 11/16 x 18 1/2	14 7/8	Glass	Recessed Small Cavity	Gray A	110	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.					
24AXP4	6.3	0.30	22 11/16 x 18 1/2	15 7/8	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	1700 Min., 2500 Max.	Electrostatic	22,000	550	16,000	300	40-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.					
24BP4	6.3	0.6	22 1/4 Min. Diam.	24 1/4	Metal	Cone Lip	Gray	70	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic	17,600	550	14,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −56 to +310 Volts.					
24BAP4	6.3	0.60	22 11/16 x 18 1/2	15 7/8	Glass	Recessed Small Cavity	Gray A	110 (SN)	None	JEDEC No. B7-183# 7 Pin	8HR	2000 Min., 2500 Max.	Electrostatic	22,000	70	16,000	50	37-52
													Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = 0 to 400 Volts.					
24CP4 24CP4A	6.3	0.6	22 11/16 x 18 7/16	21 1/8	Glass	Recessed Small Cavity	Gray GA	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	22,000	550	18,000	300	33-77
24DP4 24DP4A	6.3	0.6	22 11/16 x 18 7/16	21 1/8	Glass	Recessed Small Cavity	Gray GA	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic	22,000	550	18,000	300	33-77
													Focusing Voltage = −550 to +1100 Volts Max., Operating Range = − 72to +396 Volts.					

24QP4	6.3	0.6	$22^{11}/_{16}$x$18^{7}/_{16}$	$21^{1}/_{8}$	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 750 Max.	Magnetic	19,800	550	16,000	300	33-77
24TP4	6.3	0.6	$22^{11}/_{16}$x$18^{7}/_{16}$	$21^{1}/_{8}$	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12N	250 Min., 2500 Max.	Magnetic	22,000	550	18,000	300	33-77
24VP4 24VP4A	6.3	0.6	$22^{43}/_{64}$x$18^{7}/_{16}$	$21^{1}/_{8}$	Glass	Recessed Small Cavity	Gray GA	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	24,200	660	20,000	300	33-77
2XP4	6.3	0.6	$22^{11}/_{16}$x$18^{7}/_{16}$	$21^{1}/_{8}$	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	22,000	550	18,000	300	33-77
24VP4	6.3	0.6	$22^{43}/_{64}$x$18^{7}/_{16}$	$21^{1}/_{8}$	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 72 to + 396 Volts.	22,000	550	18,000	300	33-77
24ZP4	6.3	0.6	$22^{43}/_{64}$x$18^{7}/_{16}$	$21^{1}/_{8}$	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to 500 Volts.	22,000	550	16,000	300	33-77
24AP4	6.3	0.6	$25^{1}/_{4}$x$19^{15}/_{16}$	$21^{5}/_{8}$	Metal	Cone Lip	Gray	90	Single	Small Shell Duodecal 6 Pin	12M	None	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = −60 to +300 Volts.	19,800	550	15,000	300	33-77
27VP4	6.3	0.60	$25^{9}/_{32}$ x $20^{7}/_{32}$	$21^{1}/_{16}$	Glass	Recessed Small Cavity	Gray A	90	None	Small Shell Duodecal 6 Pin	12L	2000 Min., 2500 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Voltage = −72 to +396 Volts.	19,800	550	16,000	300	33-77
27EP4	6.3	0.6	$25^{9}/_{32}$x$20^{7}/_{32}$	$23^{1}/_{16}$	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	22,000	550	16,000	300	33-77
27GP4	6.3	0.6	$25^{9}/_{32}$x$20^{7}/_{32}$	$23^{1}/_{16}$	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	24,800	550	20,000	300	33-77
27LP4	6.3	0.6	$25^{9}/_{32}$x$20^{7}/_{32}$	$24^{23}/_{64}$	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12N	200 Min., 400 Max.	Magnetic	24,200	660	20,000	300	33-77
27MP4	6.3	0.6	$25^{1}/_{4}$ x$19^{15}/_{16}$	$21^{3}/_{4}$	Metal	Cone Lip	GF A	90	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	19,800	550	16,000	300	42-78
27NP4	6.3	0.6	$25^{9}/_{32}$x$20^{7}/_{32}$	23	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 5 Pin	12N	2000 Min., 2500 Max.	Magnetic	19,800	550	16,000	300	33-77
27RP4	6.3	0.6	$25^{9}/_{32}$x$20^{7}/_{32}$	$23^{1}/_{16}$	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 5 Pin	12N	500 Min., 2500 Max.	Magnetic	22,000	550	20,000	300	33-77
27SP4	6.3	0.6	$25^{9}/_{32}$x$20^{7}/_{32}$	$23^{1}/_{16}$	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max. Operating Range = − 72 to + 396 Volts.	22,000	550	18,000	300	33-77
27UP4	6.3	0.6	$25^{9}/_{32}$x$20^{7}/_{32}$	$23^{1}/_{16}$	Glass	Recessed Small Cavity	Gray	90	Single	Small Shell Duodecal 6 Pin	12L	500 Min., 750 Max.	Electrostatic Focusing Voltage = −550 to +1100 Volts Max., Operating Range = 0 to +396 Volts.	22,000	550	16,000	300	33-77
27WP4	6.3	0.30	$25^{9}/_{32}$ x $20^{7}/_{32}$	$22^{3}/_{32}$	Glass	Recessed Small Cavity	Gray A	90	Single	Small Shell Duodecal 7 Pin	12AJ	750 Min., 2000 Max.	Electrostatic Focusing Voltage = −550 to +550 Volts Max., Operating Voltage = −60 to +350 Volts.	22,000	550	18,000	300	40-80
30BP4	6.3	0.6	$30^{1}/_{8}$ Diam.	$23^{9}/_{16}$	Metal	Cone Lip	Gray	90	Single	Small Shell Duodecal 5 Pin	12D	None	Magnetic	33,000	450	22,000	300	33-77

Note 1: Diagonal Deflection Angles are given for rectangular types.
* Voltage measured from the accelerator grid to the control grid.
▲ All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.
0.04 Diameter Pins integral with tube header and attachable index guide.

■ Unless otherwise noted nominal neck diameter is $1^{7}/_{8}$ inches.
(SN) Indicates small diameter neck ($1^{1}/_{8}$ inches nominal diameter).
‡ Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl = Cylindrical.
* Control grid bias for visual extinction of undeflected focused spot. For Television Picture Tubes, visual extinction of focused raster will generally require about 5 volts less bias.



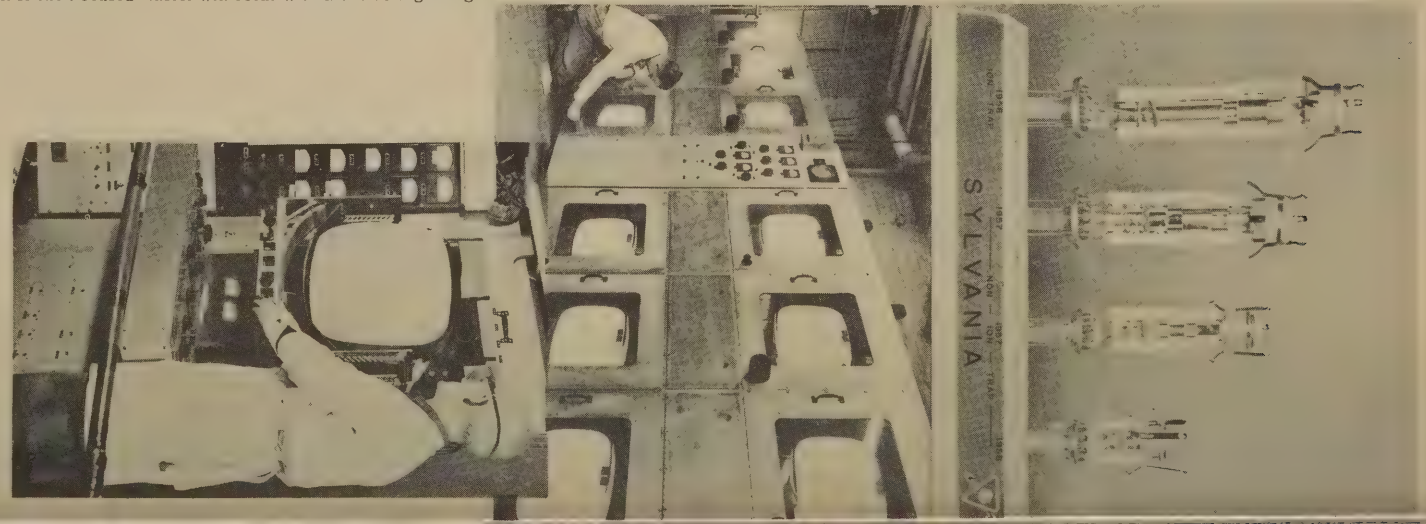


COLOR PICTURE TUBES

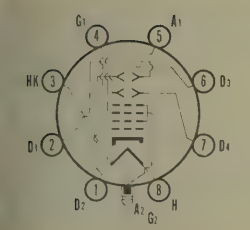
TRI-GUN (MAGNETIC DEFLECTION) TYPES

Type No.	Heater		Bulb						Base	Basing	Filter Capacitance Provided by Bulb Coating μμf	Focus	Conver-gence	Design Max. Ratings		Typical Operation		
	Volts	Amps	Nominal Face Dimensions	Max. Length Inches	Con-struction	Anode Terminals	Face Plate ‡	Defl. Angle (Neck Di. 2" Nom.)						Anode Volts	Accel'r Grid Volts	Anode Volts	Accel'r Grid Volts	Control Grid Volts
15GP22	6.3	1.8	14⅝ Diam.	26⅛	Glass	Metal Flange	Clear A	45	Small Shell Bidecal 14 Pin	20A	1500 Min., 3000 Max.	Es.	Es.	22,000	550	20,000	200	45-100‖
																	140 to 315	70*
														Focusing Voltage = 5500 Volts Max. Operating Voltage = 2400 to 3800 Volts. Convergence Voltage▲ = 12,100 Volts Max. Operating Voltage▲ = 8500 to 10,200 Volts.				
15HP22	6.3	1.8	14⅝ Diam.	26⅛	Glass	Metal Flange	Clear A	45	Small Shell Bidecal 14 Pin	20A	1500 Min., 2500 Max.	Es.	Es.	22,000	550	20,000	200	45-100‖
														Focusing Voltage = 5500 Volts Max. Operating Voltage = 3100 Volts. Convergence▲ = 12,100 Volts Max. Operating Voltage▲ = 9300 Volts.				
19TP22	6.3	1.8	19⅜ Diam.	24¾	Glass	Metal Flange	Gray A	60	Small Shell Bidecal 14 Pin	20A	1500 Min., 3000 Max.	Es.	Es.	24,200	550	20,000	200	42-78‖
														Focusing Voltage = 4400 Volts Max. Operating Voltage = 1950 to 3250 Volts. Convergence Voltage▲ = 13,200 Volts Max. Operating Voltage▲ = 8500 to 10,200 Volts.				
19VP22	6.3	1.8	19⅜ Diam.	26⅞	Glass	Metal Flange	Gray A	62	Small Shell Diheptal 12 Pin	14W	1500 Min., 3000 Max.	Es.	Mag.	29,700	550	25,000	200	45-100‖
																	150 to 330	75*
														Focusing Voltage = 9900 Volts Max. Operating Voltage = 6500 to 8000 Volts.				
21AXP22	6.3	1.8	20⅜ Diam.	25⅝	Metal	Metal Shell Lip	Gray A	70	Small Shell Neodiheptal 12 Pin	14W	None	Es.	Mag.	27,500	880	25,000	200	45-100‖
21AXP22A										14AH							130 to 370	70*
														Focusing Voltage = 6600 Volts Max. Operating Voltage = 3800 to 5300 Volts.				
21CYP22	6.3	1.8	20⅜ Diam.	25¹³⁄₃₂	Glass	Recessed Small Cavity	Gray A	70	Small Shell Neodiheptal 12 Pin	14AL	2000 Min., 2500 Max.	Es.	Mag.	27,500	660	25,000	200	45-100‖
																	130 to 370	70*
														Focusing Voltage = 6600 Volts Max. Operating Voltage = 4200 to 5000 Volts.				
22EP22	6.3	1.8	21²¹⁄₃₂x17⅞	25¾	Glass	Recessed Small Cavity	Gray A	70	Small Shell Neodiheptal 12 Pin	14W	1500 Min., 2800 Max.	Es.	Mag.	27,500	880	25,000	200	55-105‖
																	50 to 225	60*
														Focusing Voltage = 6600 Volts Max. Operating Voltage = 4000 to 5100 Volts.				

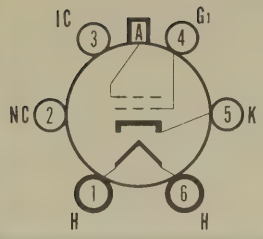
‡Face Plate Treatments G = Gray F = Frosted A = Aluminized Cyl. = Cylindrical.
‖With a fixed voltage on the Accelerator Grid, Visual Extinction of the Focused Raster will occur within the voltage range specified in the Control Grid column.
*With a fixed voltage on the Control Grid, Visual Extinction of the Focused Raster will occur within the voltage range specified in the Accelerator Grid column.
▲Does not include the dynamic convergence component.



BASE DIAGRAMS



3XP1
3YP1



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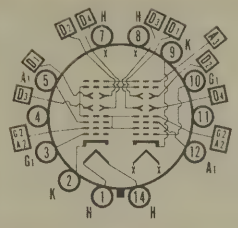

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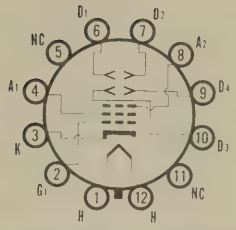

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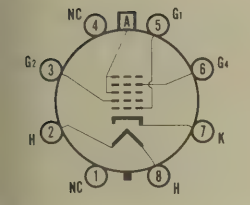
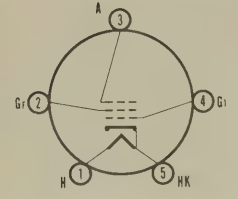


5AEP7

5AFP1



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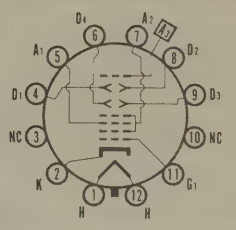

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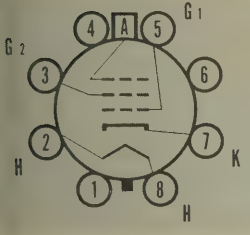
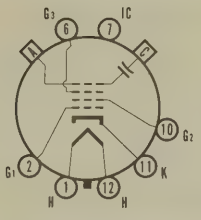


5-AN



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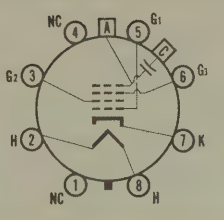

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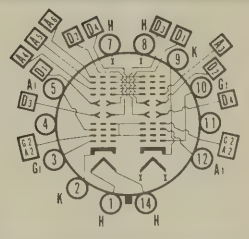

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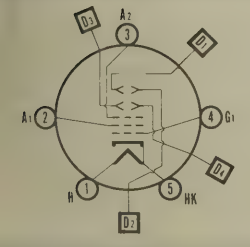

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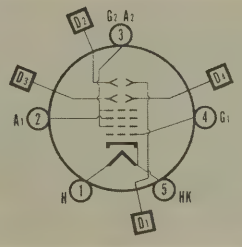

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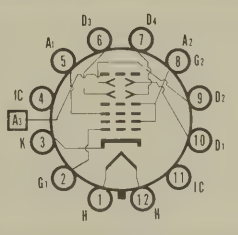

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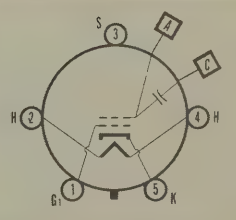

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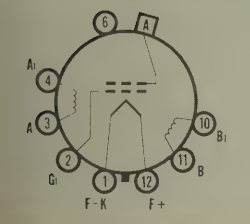

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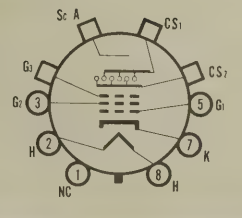

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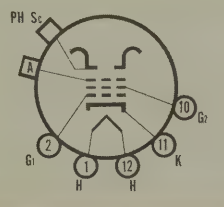

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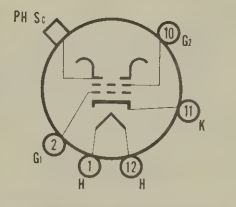

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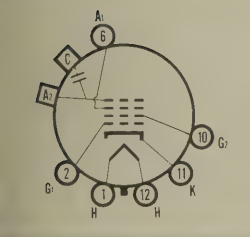

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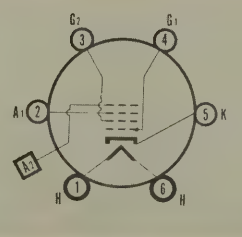

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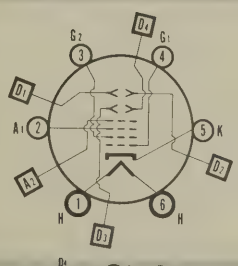

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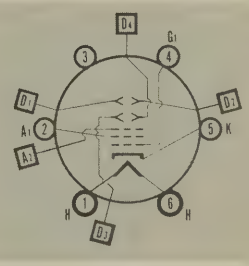

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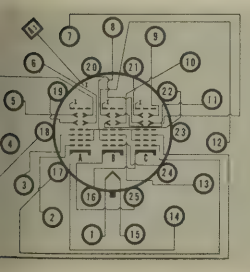

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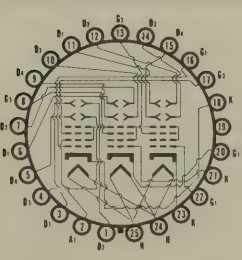

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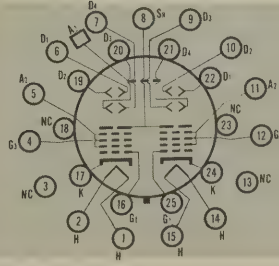

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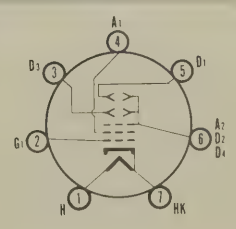


7-AN

BASE DIAGRAM SYMBOLS

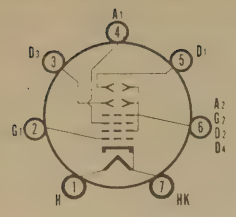
A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

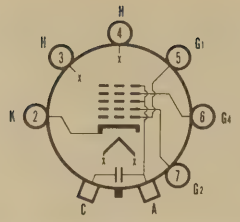
H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

■ or → Locating Lug
IC Internal Connection (Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

BASE DIAGRAMS


7-CE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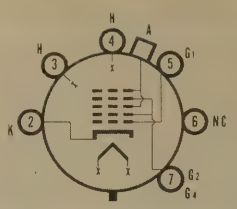
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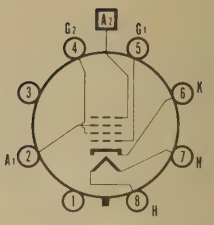
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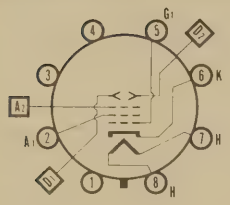
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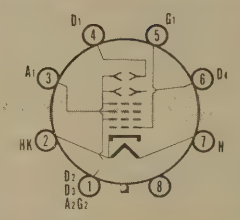
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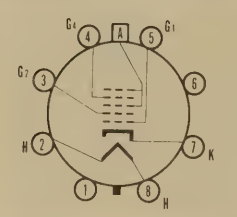
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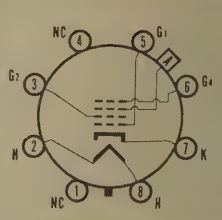
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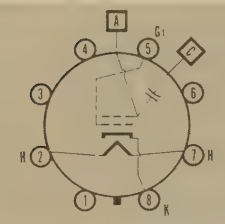
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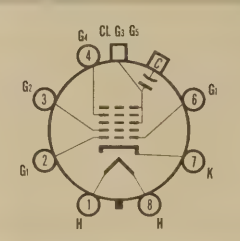
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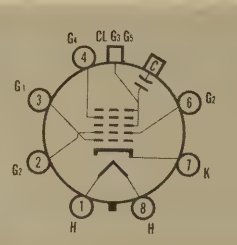
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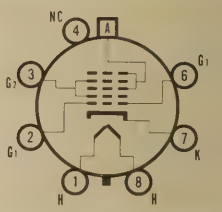
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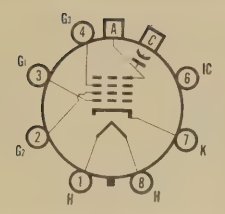
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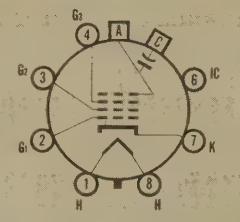
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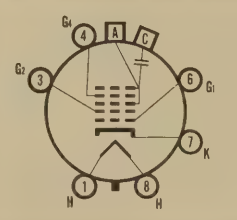
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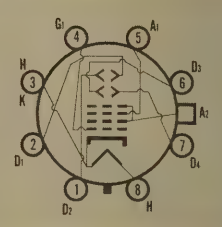
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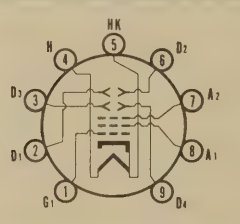
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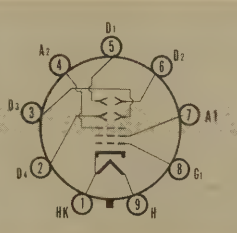
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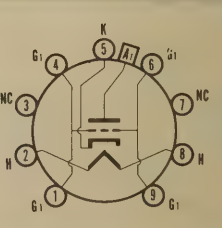
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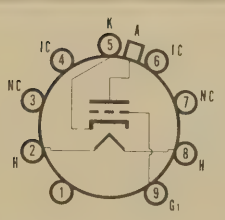
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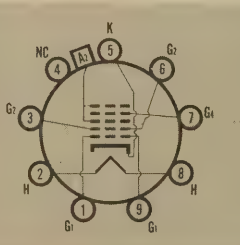
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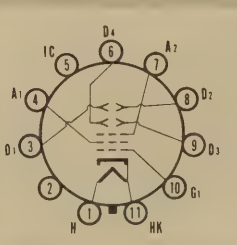
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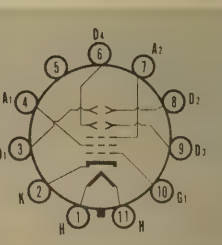
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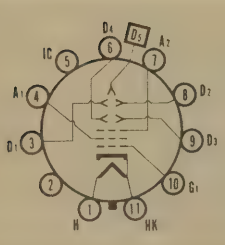
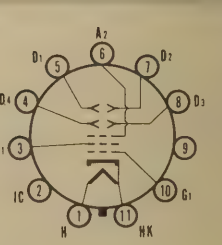

11-C

11-E

11-F


11-

BASE DIAGRAM SYMBOLS

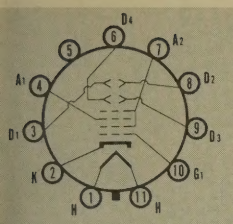
A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

■ or → Locating Lug
IC Internal Connection (Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

BASE DIAGRAMS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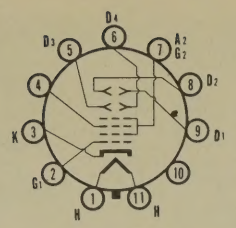
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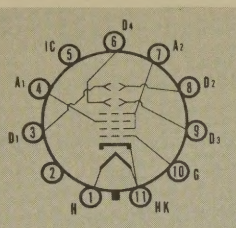
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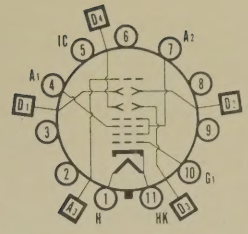
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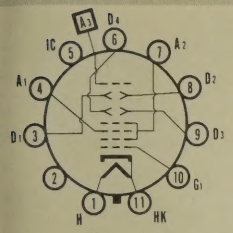
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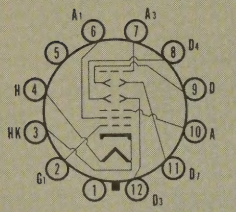
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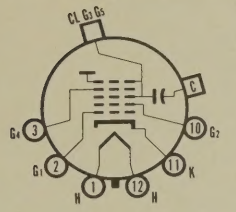
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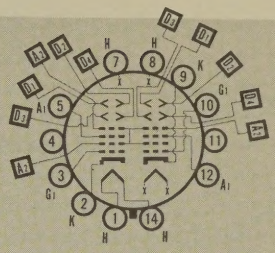
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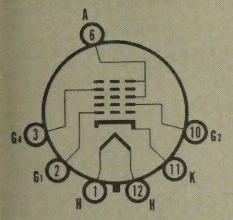
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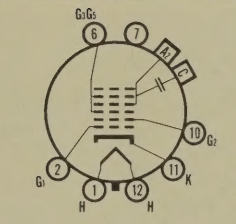
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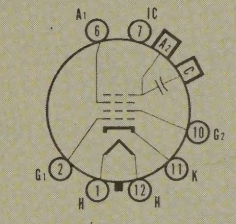
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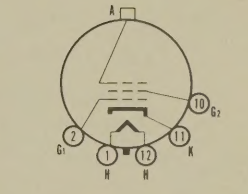
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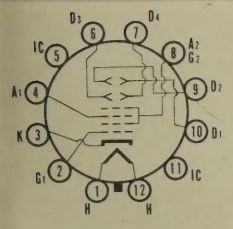
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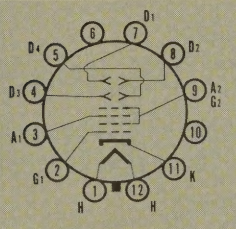
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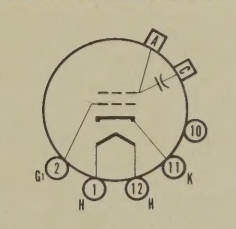
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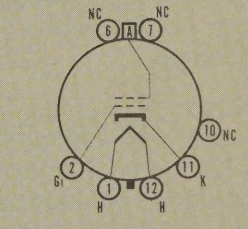
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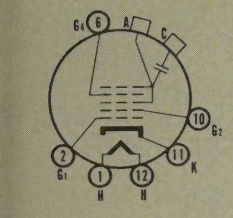
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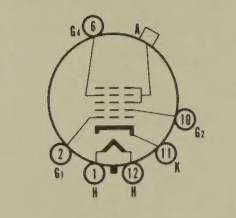
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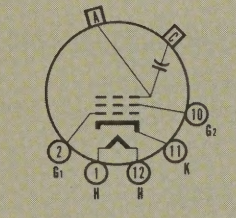
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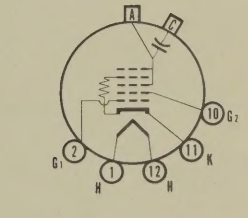
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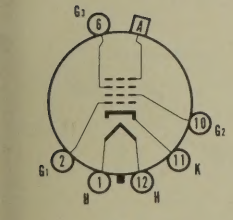
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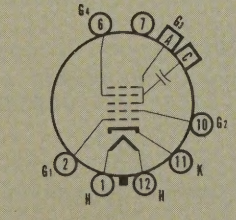
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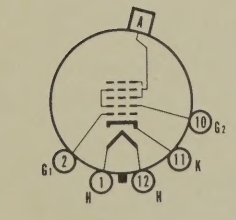
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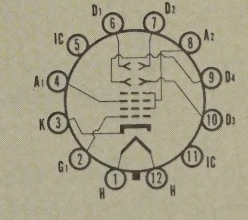
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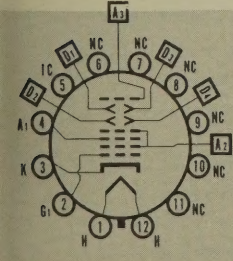
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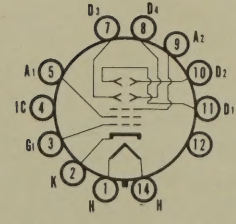
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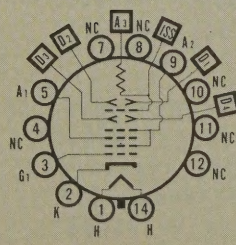
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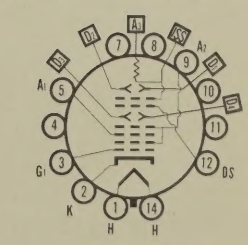
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BASE DIAGRAM SYMBOLS

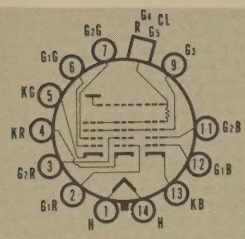
A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

■ or → Locating Lug
IC Internal Connection (Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

BASE DIAGRAMS



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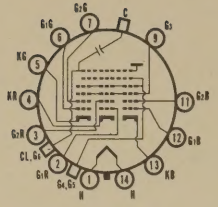

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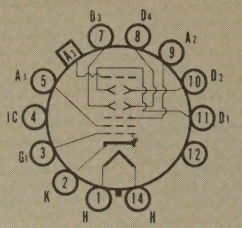

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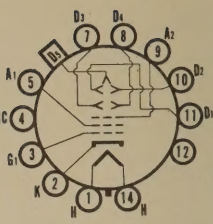

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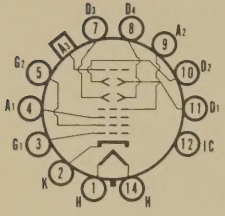

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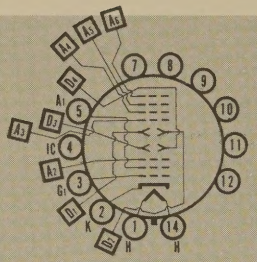

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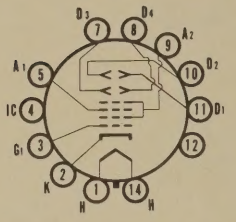

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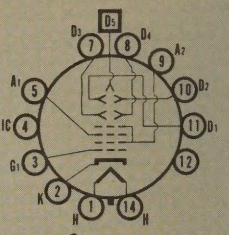

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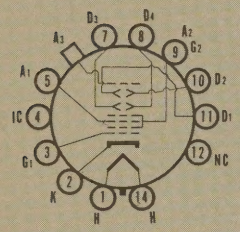

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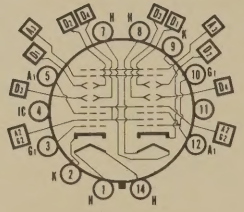

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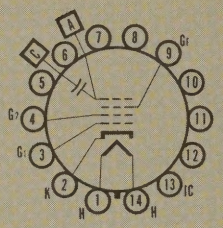

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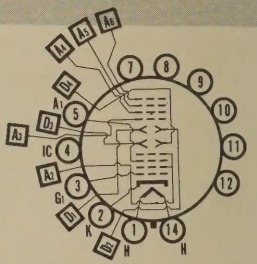

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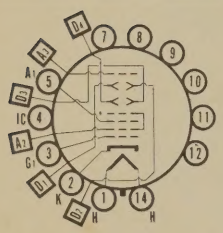

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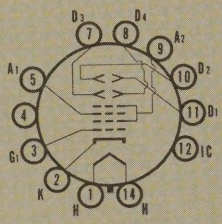

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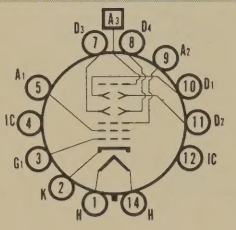

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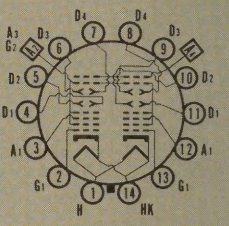

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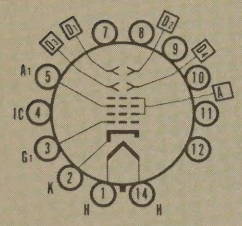

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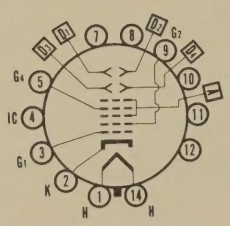

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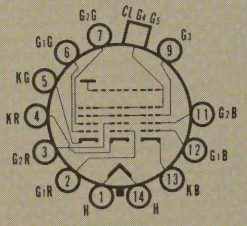

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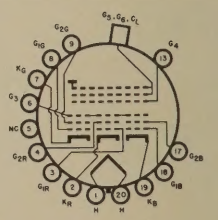

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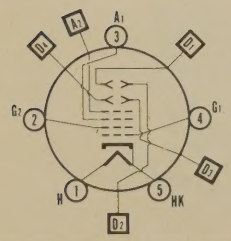

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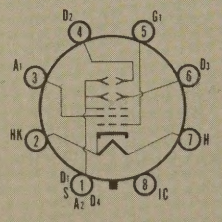

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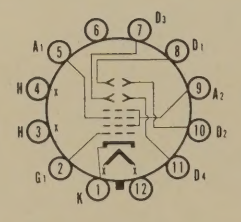


VCR139A

BASE DIAGRAM SYMBOLS

A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

■ or → Locating Lug
IC Internal Connection (Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

how to handle and install TV picture tubes and large cathode ray tubes

"An ounce of prevention is worth a pound of cure" . . . best rule to follow when handling and installing Television Picture Tubes and other large Cathode Ray Tubes. Since Picture Tubes are large elements constructed of glass and enclosing an evacuated space they must be protected from severe shock . . . handled with extreme care.

The normal precautions taken when working with any high voltage circuits, should be observed. Specific procedures and proper precautions are outlined here.

MECHANICAL HANDLING:

1 Protective face shield or goggles and gloves should be worn, for personal safety, whenever handling large picture tubes.

2 Picture tubes should be removed from the shipping carton face up and supported by the sides of the large portion of the tube. Handling of large picture tubes by the neck is unsafe and should be avoided at all times. It is obviously the weakest part of the tube and most easily injured. Therefore, the neck should always be kept free of strain and protected from striking other objects.

3 Picture tubes should be inserted into sockets by supporting the tube at the large end and holding the neck only for guiding the base pins into the socket.

4 The tubes should be removed from their sockets in the same manner as they are inserted, supported at the large end.

5 When not installed in a television receiver or other equipment, picture tubes should be stored in shipping cartons with the covers closed.

6 Avoid placing picture tubes on a table or bench where there is any possibility of the tube rolling off. This is very important.

7 Scratching the surface of a picture tube weakens the glass and may be the cause of the tube imploding. If it is necessary to place a tube elsewhere than in its shipping carton, a piece of felt or other soft material should be placed under it.

8 Picture tubes should be used for display purposes only after the vacuum seal has been broken. Economy dictates that only wornout, or otherwise worthless, tubes be used for this purpose. The vacuum seal may be broken in the following manner.

a Place the tube in a shipping carton, face down, with enough soft packing material underneath so that the base will extend above the closed cover.

b Drill a ¼-inch hole in the end of the locating lug or break off the lug entirely with a sharp blow or with pliers.

c Using a small file or cutting pliers, make a small hole at the tip of the exhaust tube. Care should be used to make a small hole in the tip so that air will enter the tube slowly and not disturb the screen coating. In tubes using a metal exhaust tube a small three-cornered file may be used to make a small hole. The bright getter deposit on the neck should change color almost immediately. As a precaution, some time after the small hole has been made, it is well to break off the tip completely. The tube cannot implode after the vacuum seal has been broken, but it should still be handled as carefully as any other glassware of equal weight.

9 Discretion should be exercised in the disposal of tubes which are no longer useful to avoid possible legal liability. A safe method of breaking up a tube for disposal is to place it in a carton, seal the carton, and drive a metal rod through the carton into the face of the side of the tube. The broken parts may then be disposed of in the usual manner.

10 If a tube does break causing small cuts in the skin, such cuts should be washed carefully to be certain that all dirt and other small particles are removed. While the materials used for coating Sylvania picture tubes are not considered to be toxic, there is the possibility of an unusual personal sensitivity or allergy in some persons.

HANDLING HIGH VOLTAGE CIRCUITS:

1 Stand on dry wood, a rubber mat, linoleum or other dry insulating material when working on any electrical circuit.

2 One hand should be kept in a pocket to reduce the effects of accidental shock.

3 Respect all safety interlock switches and be certain that they are in good working condition.

4 Be certain that high voltage condensers are discharged before working on the circuit. Bleeder resistors may be open.

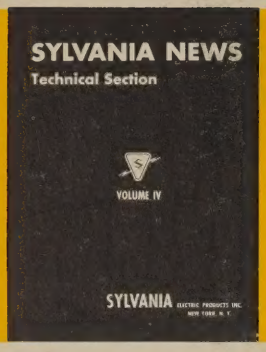
5 Some picture tubes have a conductive coating on both the inside and outside surfaces to form a condenser. This condenser should be discharged before the tube is handled. Even a slight unexpected shock might cause a tube to be dropped.

6 In some circuits where the picture tubes operates with a voltage on its second anode higher than its specified maximum rating, or higher than 16,000 volts whichever is less, it is possible that low intensity X-rays may be emitted. Therefore, X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if the tube is operated at such high voltages.

7 Take the time to be safe.

TECHNICAL LITERATURE

Published by Sylvania and constantly revised to keep you informed about the most recent electronic developments.



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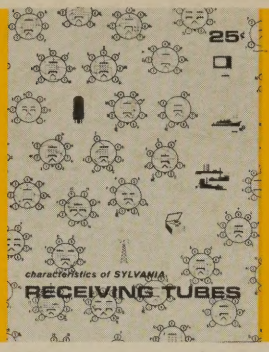
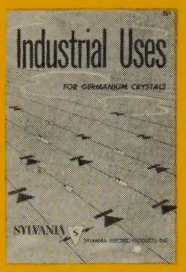


Characteristics of tubes with tube base diagrams.
No. 1350—RECEIVING TUBES —25c



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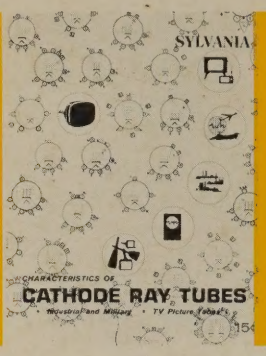

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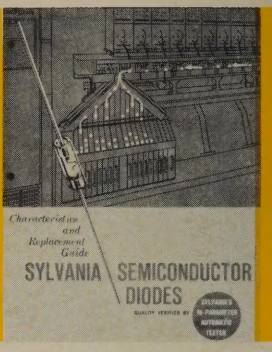

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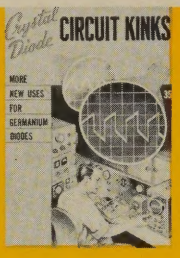

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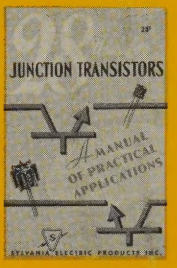

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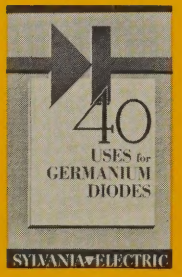

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